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NOT ONLY INNOVATION BUT ALSO COLLABORATION, FUNDING, GOODWILL
AND COMMITMENT: WHICH ROLE FOR PATENT LAWS IN POST-
COPENHAGEN CLIMATE CHANGE ACTION

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ABSTRACT

Patent laws can do their bit to help reduce our greenhouse gas emissions. In 2009, accelerated grant procedures and reduction of fees have been put in place by among others the UK and US patent offices. Private initiatives such as the eco-patent commons to licence technology free of charge have been taken. But greening patent law is only a small part of the solution. However well-intentioned all these initiatives are, for several reasons, they may not be sufficient or even at all used. More than intellectual property-related solutions, what will be needed is non-intellectual property-related solutions such as using technology already in the public domain, collaborating rather than competing, funding especially for developing and least developed countries (to build renewable energy plants, reforest the earth), goodwill (accept to licence developed countries' technology at cheap prices to developing and least developed countries for a while) and above all both individual and collective commitment.

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NOT ONLY INNOVATION BUT ALSO COLLABORATION, FUNDING, GOODWILL AND COMMITMENT: WHICH ROLE FOR PATENT LAWS IN POST- COPENHAGEN CLIMATE CHANGE ACTION

ESTELLE DERCLAYE *

INTRODUCTION

Much hope accompanied the days before and during the Copenhagen summit on climate change last December.¹ The summit did not deliver a treaty, as it was not anticipated already some time before the summit, but unfortunately it did not even deliver a strong commitment between the countries present.² More will need to be done in 2010. More specifically, intellectual property rights (“IPR”) have been left out of the so-called “Copenhagen Accord” reached on December 18, 2009.³ Most developed countries must have given a “pheeew” of relief whilst least developed and developing countries must now feel disgruntled. Whilst many thought earlier in the year that intellectual property and technology transfer were going to be a focal point in the Copenhagen negotiations,⁴ this prospect vanished when most developed countries including the European Union (“EU”) and the United States (“U.S.”) announced that IPR issues should not be on the agenda in the climate change negotiations.⁵ For them, such issues are better discussed within the international

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¹ See, e.g., Editorial, *Fourteen Days to Seal History's Judgment on This Generation*, GUARDIAN (London), Dec. 7, 2009, at 1 [hereinafter *Fourteen Days*] (describing how fifty-six newspapers in forty-five countries took the unprecedented step of uniting together in drafting one editorial imploring the attendees of the Copenhagen Summit to take a step forward in addressing the issue of global climate change).

² See John M. Broder & Elisabeth Rosenthal, *U.N. Official Says Climate Deal Is at Risk*, N.Y. TIMES, Jan. 21, 2010, at A8 (warning that one of the major provisions found within the Copenhagen accord is in jeopardy because many of the major countries have not submitted their plans for reducing emissions of climate altering gases); James Kanter, *E.U. Blames Others for 'Great Failure' on Climate; China Rejects U.K. Charge That It Raised Barriers to Better Copenhagen Deal*, INT'L HERALD TRIB., Dec. 23, 2009, at 1 (reporting that the Copenhagen summit meeting was viewed as a “great failure” because nations rejected targets and timetables to agree to binding emissions reductions).

³ Copenhagen Accord, Dec. 18, 2009, CP.15, available at http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf.

⁴ See, e.g., Tove Iren S. Gerhardsen, *Technology Transfer Will Be Part of Copenhagen Climate Deal*, INTELL. PROP. WATCH, Sept. 16, 2009, <http://www.ip-watch.org/weblog/2009/09/16/technology-transfer-will-be-part-of-copenhagen-climate-deal/>.

⁵ Catherine Saez, *IP Rights in a Quiet Tug-Of-War at UN Climate Change Negotiations*, INTELL. PROP. WATCH, Nov. 6, 2009, <http://www.ip-watch.org/weblog/2009/11/06/ip-rights-in-a-quiet-tug-of-war-at-un-climate-change-negotiations/> (“European countries, along with the United States and most other developed countries consider that IP rights issues do not have a place in the climate change negotiations . . .”). Unless otherwise stated, footnotes in quotations have been omitted.

institutions which “already have a mandate and an expertise on the subject, such as the [World Trade Organisation].”⁶

In fact, it may not be all that important for any country, be it developed or developing, that IPR are kept in or left out of climate talks in the end.⁷ The reason is simple. Whilst IPR can definitely play a role in mitigating climate change, a myriad of other measures can do so too, and perhaps even more than IPR. This is reflected in the Copenhagen Accord and constitutes its positive aspect.⁸ According to its article 3, “developed countries shall provide adequate, predictable and sustainable financial resources, technology and capacity-building to support the implementation of adaptation action in developing countries.”⁹ Whilst IPR are absent from the wording of the text, “technology” or “technology transfer” appears in almost half of the articles (namely art. 3, 5, 8, 10 and 11).¹⁰ Article 11 also states that technology transfer will be accelerated in support of action on adaptation and mitigation but adds that this “will be guided by a country-driven approach and be based on national circumstances and priorities.”¹¹ Thus, even if there is no talk of free intellectual property, compulsory licences, suspension or denial of patents on green technologies, technology transfer will somehow occur even if indirectly and/or partially. Arrangements will be made on an ad-hoc basis and it is not excluded that some patented technologies will be licensed at low prices or be gratis in some situations anyway. In any case, much green technology already is in the public domain. Also it is not only technology which is needed, funding to take measures to adapt to climate change and to reforest the planet are also a big part of the solution to the problem.¹²

Even if there must be a mix of different initiatives to tackle global warming and IPR are only part of the solution, still, IPR, mainly patents, can and should be used to reduce green house gases (“GHG”) emissions. In the first part of this editorial, both IP and non-IP-related solutions will be discussed and their respective merits examined. Before concluding, the second part will discuss the contribution of the U.S.

⁶ *Id.*; see also Tove Iren S. Gerhardsen, *IP References Left Out Of Last-Minute, Weak Global Climate Deal In Copenhagen*, Dec. 19, 2009, <http://www.ip-watch.org/weblog/2009/12/19/ip-references-left-out-of-last-minute-weak-global-climate-deal-in-copenhagen> (“[T]he United States and the European Union in particular held that IP should not be part of this particular draft text or any climate agreement in general.”).

⁷ See Peter Drahos, *The China-US Relationship on Climate Change, Intellectual Property and CCS: Requiem for a Species?*, 1 WIPO J. 125, 132 (2009) (“Probably the best strategy here is to keep intellectual property rights out of climate change negotiations and deal with specific issues as they arise on a case by case basis.”). *Contra* Matthew Rimmer, *The Road to Copenhagen: Intellectual Property and Climate Change*, 4 J. INTELL. PROP. L. & PRAC. 784, 787 (2009) (“[I]t would be a matter of great concern if the proposed agreement did not properly address matters of IP and climate change.”).

⁸ Copenhagen Accord, *supra* note 3.

⁹ *Id.* ¶ 3.

¹⁰ *Id.* ¶¶ 3, 5, 8, 10, 11.

¹¹ *Id.* ¶ 11.

¹² See, e.g., Copenhagen Accord, *supra* note 3.

I. IP-RELATED SOLUTIONS

As I have suggested in previous publications, patent laws should not only be green(ed) (i.e. polluting inventions should be unpatentable—negative system), they should also treat those green inventions, which go above the threshold of eco-friendliness (whatever the legislature decides it is) more favorably (positive system).¹³ Thus, a mixed system is the best solution to promote green innovation.¹⁴ This flows from article 6 of the EC Treaty (“ECT”) (now art. 11 of the Treaty on the Functioning of the EU (“TFEU”)), which mandates the integration of environmental policy within certain other EU policies.¹⁵ This is now even clearer that the EU has no choice in this respect. The EU Charter of Fundamental Rights, which is now in force since December 1, 2009, clearly protects intellectual property (art. 17(2))¹⁶ but also, and even more forcefully than article 11 TFEU, states that “[a] high level of environmental protection and the improvement of the quality of the environment *must be integrated into the policies of the Union* and ensured in accordance with the principle of sustainable development.”¹⁷

Several incentives can be envisaged to reward greener technology: accelerated examination, reduction, cancellation or waiver of fees, removal of green inventions from deferred examination, earlier publication and/or priority at the opposition and infringement stages, stronger protection (e.g. lengthen the term of protection). Recently, some commentators have proposed another type of incentive, namely disclosure of information about the invention’s environmental impact.¹⁸ This would introduce an enhanced condition of disclosure, the latter already existing in patent laws to enable the skilled reader to make the invention.¹⁹ An application lacking the

¹³ See, e.g., Estelle Derclaye, *Should Patent Law Help Cool the Planet? An Inquiry from the Point of View of Environmental Law: Part 1*, 31 EUR. INTELL. PROP. REV. [E.I.P.R.] 168, 183–84 (2009); Estelle Derclaye, *Should Patent Law Help Cool the Planet? An Inquiry from the Point of View of Environmental Law: Part 2*, 31 EUR. INTELL. PROP. REV. [E.I.P.R.] 227, 227, 230 (2009) [hereinafter *Part 2*]. These articles were republished on request by the editor of the *International Energy Law Review* (“IELR”) 2009, issues 5 and 6, pp. 185–200, 229–237.

¹⁴ *Id.* at 231–32.

¹⁵ Consolidated Version of the Treaty on the Functioning of the European Union art. 11, May 9, 2008, 2008 O.J. (C 115) 1 [hereinafter TFEU], available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:115:0047:0199:EN:PDF>; Consolidated Version of the Treaty Establishing the European Community, art. 6, 2002 O.J. (C 115) [hereinafter ECT], available at <http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/ce321/ce32120061229en00010331.pdf>.

¹⁶ Charter of Fundamental Rights of the European Union art. 17(2), 2000 O.J. (C 364) (emphasis added), available at http://www.europarl.europa.eu/charter/pdf/text_en.pdf.

¹⁷ Compare *id.* art. 37 (emphasis added) (“A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development.”), with TFEU, *supra* note 15 art. 11 (“Environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development.”).

¹⁸ See generally Carolyn Abbot & David Booton, *Using Patent Law’s Teaching Function to Introduce an Environmental Ethic into the Process of Technological Innovation*, 21 GEO. INT’L ENVTL. L. REV. 219 (2009) (arguing that an environmental disclosure requirement to both European and U.S. patent applications would make a significant contribution to the sustainable consumption and production agenda).

¹⁹ See, e.g., 35 U.S.C. § 112 ¶ 1 (2006).

environmental part of the disclosure would not be prone to refusal, opposition or revocation. Patent offices would not check whether the condition is satisfied. The absence of compliance would only bite at the infringement stage. It would provide a complete defence in infringement proceedings.²⁰

Undoubtedly, the proposal to green patent laws is not accepted unanimously among patent lawyers. The doubts and concerns of the sceptics can be addressed here again and in more detail. Even if adding a condition of eco-friendliness will be more costly for inventors as they will have to prove an additional requirement in order to obtain a patent, this is part of the cost of our survival. Anyway, if they have to comply with environmental law at some point or if they wish to benefit from the use of certain eco-labels, they will have to calculate the carbon footprints of their products. So the cost in many cases will not be additional to what is already in place. The rewards flowing from the system (longer term of protection, faster examination, reduced or cancelled fees, etc.) can also potentially offset this cost.²¹ It is also not insurmountable to determine what a green invention is. The legislature just has to decide a standard, like in environmental law, and make it applicable to patents. For products, it will be relatively simple, even if patents do not always equal products (e.g. complex products), part of the product will have to do something to reduce emissions above the threshold in order to get the favoured treatment. For processes, it is arguably more difficult. Some processes will more or less easily be falling into the definition but others may be 'neutral' in the sense that they can be used either in a polluting or an eco-friendly way, depending on the products used in the process. And this may not be down to the inventor. If a process is neutral, as long as it is not polluting as such, then it will be patentable but it will not get the favoured treatment. Another at first sight strong objection to greening patent laws is that if polluting inventions are made unpatentable, everyone can pollute and the technology is available at a cheaper price than if it was patented.²² Several counter-arguments can be advanced. First, the statement is not as convincing as it first appears: if the invention is unpatentable, it is much less likely that engineers will embark into inventing it as they will have no incentive to do so in the first place.²³ Who would spend time and money into inventing something which is unpatentable (unless it can neatly be kept secret of course, which might by the way not always be possible)?²⁴ Second, a patent acts as a sanction from the state.²⁵ The state agrees that the invention should be rewarded by a patent.²⁶ The state cannot disclaim responsibility

²⁰ Abbot & Booton, *supra* note 18, at 248–49.

²¹ *But see* discussion *infra* Parts II, III.

²² EDWARD ARMITAGE & IVOR DAVIS, PATENTS AND MORALITY IN PERSPECTIVE 58 (London: Common Law Institute of Intellectual Property 1994).

²³ ARMITAGE & DAVIS, *supra* note 22, at 58; Derclaye, *Part 2, supra* note 13, at 229.

²⁴ *See* DAVID ANDREWS & RICHARD WILES, ENVIRONMENTAL WORKING GROUP, OFF THE BOOKS: INDUSTRY'S SECRET CHEMICALS 2 (2009), *available at* <http://www.ewg.org/files/secret-chemicals.pdf> (describing that between the years of 1990–2005 the number of confidential chemicals has more than quadrupled from 261 to 1,105).

²⁵ *See, e.g.*, U.S. CONST. art. I, § 8, cl. 8; 35 U.S.C. § 271 (2006) (granting the patent holder the right to sue an infringer).

²⁶ *See, e.g.*, 35 U.S.C. §§ 101–03, 112, 271 (defining the criteria necessary to receive a U.S. patent, and allowing the patent holder to sue an infringer).

for granting patents on polluting inventions.²⁷ This is so even if the patent office is not (mainly) funded by public sources, as obtaining a patent is still a sanction from the state.²⁸ In addition, it would be totally paradoxical and contradictory that whilst the state grants a patent on a polluting invention via its patent law, it then prevents its use later on via its environmental laws. It seems however that the idea is gradually making converts as the following paragraph shows.

So far, in the EU, the United Kingdom (“UK”) Intellectual Property Office (“IPO”) has introduced a fast track system for green technology.²⁹ On May 12, 2009, patent applications for green technologies (even those filed before May 12) can benefit from an accelerated procedure.³⁰ To enter the so-called “Green Channel,” the applicant must simply make a request in writing, “mak[ing] a reasonable assertion that the invention in the patent application is one which has some environmental benefit,”³¹ and “which actions [he/she] wish[es] to accelerate: Search, Combined Search and Examination, Publication, and/or Examination.”³² The Intellectual Property Office “will require no further reasons for accelerated processing.”³³ According to the UK IPO,

[T]here is no specific environmental standard to meet in order to benefit from the Green Channel. The applicant simply needs to provide as much justification as is necessary to explain why their invention is environmentally-friendly. If, for example, the application relates to a wind turbine or a recycling process then a simple statement that the invention is environmentally-friendly is likely to be sufficient. However, if the application relates to a manufacturing process which uses less energy, then a more detailed explanation of the environmental benefit should be provided.³⁴

This system does not seem very effective as it is not always possible to find out *ex ante* whether the invention will be able to benefit from the scheme as a precise criterion of eco-friendliness is not laid out in the procedure and it is basically left to the whim of the patent examiner.³⁵ In addition, even a minor benefit will do, as the

²⁷ WILLIAM CORNISH & DAVID LLEWELYN, *INTELLECTUAL PROPERTY: PATENTS, COPYRIGHT, TRADE MARKS AND ALLIED RIGHTS* 882 (6th ed. 2007).

²⁸ See U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, PERFORMANCE AND ACCOUNTABILITY REPORT FISCAL YEAR 2009 68 (2009), *available at* <http://www.uspto.gov/about/stratplan/ar/2009/2009annualreport.pdf> (stating that the USPTO has been supported by user fees, small gifts, and gifts-in-kind since the 1993 fiscal year).

²⁹ Press Release, U.K. Intellectual Prop. Office, UK ‘Green’ Inventions to Get Fast-Tracked Through Patent System (May 12, 2009) (on file with The John Marshall Review of Intellectual Property Law), *available at* www.ipo.gov.uk/press-release-20090512.

³⁰ Practice Notice, U.K. Intellectual Prop. Office, Green Channel for Patent Applications (May 12, 2009) (on file with The John Marshall Review of Intellectual Property Law), *available at* www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/pn-green.htm.

³¹ Press Release, *supra* note 29.

³² Practice Notice, *supra* note 30.

³³ *Id.*

³⁴ E-mail from Sarah Barker, Patents Legal Section, Intell. Prop. Office (Dec. 22, 2009, 16:51 GMT) (on file with The John Marshall Review of Intellectual Property Law).

³⁵ U.K. INTELLECTUAL PROP. OFFICE, GETTING YOUR PATENT GRANTED MORE QUICKLY ¶ 14 (2009), <http://www.ipo.gov.uk/p-fastgrantguide.pdf> [hereinafter FAST GRANT GUIDE].

rule says “some” environmental benefit.³⁶ This may defeat the purpose and lead to a patent race which will treat more deserving and less deserving green inventions in the same way. Nevertheless, the UK IPO reports that patent attorneys and applicants as well as other patent offices have welcomed the scheme very warmly.³⁷ As shall be seen later, the USPTO has introduced a similar albeit more detailed system in December of 2009.³⁸ The Australian and South Korean patent offices have also launched similar schemes.³⁹ The UK IPO reports that China, Japan and Brazil have expressed interest in introducing similar fast track systems.⁴⁰ It also considers that its new initiative is a success noting that between May 12 (when the system was introduced) and December 22, 2009, seventy-seven applications have been accelerated under the Green Channel.⁴¹ This equates to approximately 1% of the total number of applications searched and examined by the IPO over that period.⁴² Of the applications accelerated under the Green Channel, five have already been granted.⁴³ This means that it took even less time to obtain a patent on a green technology than the nine months that D. Lammy initially announced it would take for the UK IPO to grant green patents.⁴⁴

What other possibilities are there to foster eco-friendly inventions?

One commentator doubts of the effectiveness of the above-mentioned mechanisms.⁴⁵ For him, what we need to implement is a patent rewards system.⁴⁶

³⁶ *Compare* Press Release, *supra* note 29 (stating that the invention must have “some environmental benefit”), *with* 37 C.F.R. § 1.102(c)(2) (2009) (stating the invention must “materially” enhance environmental quality or energy resources), *and* U.S. PAT. & TRADEMARK OFFICE, U.S. DEPT OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 708.02(V) (8th ed., 7th rev. 2008) [hereinafter MPEP].

The materiality standard does not permit an applicant to speculate as to how a hypothetical end-user might specially apply the invention in a manner that could materially enhance the quality of the environment. Nor does such standard permit an applicant to enjoy the benefit of advanced examination merely because some minor aspect of the claimed invention may enhance the quality of the environment.

MPEP, *supra*.

³⁷ Barker, *supra* note 34.

³⁸ Pilot Program for Green Technologies Including Greenhouse Gas Reduction, 74 Fed. Reg. 64,666, 64,666–69 (Dec. 8, 2009) (describing the USPTO’s pilot program to expedite the prosecution of environmentally friendly patents).

³⁹ Media Release, Austl. Intellectual Prop. Office, Fast Tracking Patents for Green Technology Solutions (Sept. 15, 2009) (on file with The John Marshall Review of Intellectual Property Law), *available at* http://www.ipaustralia.gov.au/pdfs/news/MR_150909_fast_track_green_patents.pdf; Press Release, Korean Intellectual Prop. Office, Thanks to Superspeed Examination, Green Technology Acquires Patent in a Month (Oct. 20, 2009) (on file with The John Marshall Review of Intellectual Property Law).

⁴⁰ Barker, *supra* note 34.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Press Release, *supra* note 29.

⁴⁵ Gregory N. Mandel, *Promoting Environmental Innovation with Intellectual Property Innovation: A New Basis for Patent Rewards*, 24 TEMP. J. SCI. TECH. & ENVTL. L. 51, 52 (2005).

⁴⁶ *Id.*

Under such a system, the state would acquire rights to inventions that meet the current validity requirements and are eco-friendly and

in exchange, financially compensate[] the inventor directly instead of granting them a patent. The invention [would] then [be] made available for use to the general public, either freely or for a fee. Under most patent rewards proposals, compensation is based on the inventor's expected profit, but for the purposes of environmental innovation, compensation could be based on the expected environmental benefit provided to society by the invention.⁴⁷

There could, however, be problems with such a scheme. First of all, it may not always be possible to predict the patentee's expected profit or the expected environmental benefit the invention provides to society. But most importantly, what if the state cannot buy all the patents which meet the conditions because there is a flood of green patenting? Finally, inventors may not like this system and the system would then be counter-productive as it would reduce their incentive to invent. So a choice could be granted to inventors, either use the fast track fee-free system or the patent rewards system.⁴⁸ Indeed, some might prefer the quick and early cash (e.g. individuals, universities, research centres) whilst others might prefer to retain more control over their invention (private companies).

I do not believe that a flurry of new types of compulsory licences is the solution to the problem. Compulsory licences on green patents would decrease the incentive to invent in the first place. The legal framework existing in most countries is good enough as it provides compulsory licences when the patentee fails to work the invention without legitimate reason (and therefore arguably abuses his right) and in case a later invention improves on the initial one, and at certain detailed conditions.⁴⁹ However, where this is valid for many countries, it is not for the United States and some other states as the relevant articles (art. 31(b) and (l)) of the Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPs") are not mandatory.⁵⁰

Other patent-related projects have already been initiated such as the Eco-Patent Commons.⁵¹ Under the scheme, eleven companies have offered a number of patents

⁴⁷ *Id.* at 64 (footnotes omitted).

⁴⁸ *Id.* at 65–66.

⁴⁹ See, e.g., Agreement on Trade-Related Aspects of Intellectual Property Rights art. 31, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 1125, 1869 U.N.T.S. 299 [hereinafter "TRIPs"], available at http://www.wto.int/english/docs_e/legal_e/27-TRIPS.pdf; Paris Convention for the Protection of Industrial Property art. 5, § A(2)–(4), Mar. 20, 1883, 21 U.S.T. 1583, 828 U.N.T.S. 305 (revised at Stockholm Revision Conference July 14, 1967) [hereinafter Paris Convention], available at http://www.wipo.int/export/sites/www/treaties/en/ip/paris/pdf/trtdocs_wo020.pdf. For a more detailed discussion and improvements to the current system of compulsory licences, see Estelle Derclaye, *Intellectual Property Rights and Global Warming*, 12 MARQ. INTELL. PROP. L. REV. 263, 280–83, 287–89 (2008).

⁵⁰ TRIPs, *supra* note 49, art. 31.

⁵¹ World Business Council for Sustainable Development, <http://www.wbcsd.org/templates/TemplateWBCSD5/layout.asp?MenuID=1> (follow "Eco-Patent Commons" hyperlink then follow "Eco-Patents Database" hyperlink) (last visited Mar. 1, 2010).

which provide environmental benefits for anyone to use free of charge.⁵² The only limit is defensive termination.⁵³ If a non-pledger asserts a patent against a pledger, the latter can terminate its non-assert (i.e. agreement not to sue).⁵⁴ Since the launch of the Eco-Patent Commons in January 2008, one hundred eco-friendly patents have been pledged.⁵⁵ In early 2010, another project, the Green Xchange, will start in partnership with Creative Commons.⁵⁶

Companies that contribute patents to the Green Xchange will have the option of charging users a fixed annual licensing fee and can also restrict any licensing by rivals or for competitive use. In addition, even if no annual fee is charged, patent users must register so there is a record of who is using what technology.⁵⁷

These patent pools and other voluntary models, including public pledges—in which patentees assert they will not enforce their patent rights or charge a very small fee—are great alternative solutions to substantive changes (i.e. to the law) as they can transfer technology in a quicker and more flexible way (because it is easier to do than change the law).⁵⁸ The only trouble is that they remain voluntary and thus many important technologies may not be available under one of these schemes.⁵⁹

Another important aspect which fosters technology transfer is the fact that inventions made by publicly funded bodies such as government departments, universities and research centres, should normally be free for all (or at least for those residing in the state in question) if they can be classed as public sector information.⁶⁰ If they cannot be so classed, the body in question can (should even, as all residents have sponsored its work through their taxes) always choose to give its inventions away free of charge anyway.⁶¹ Obtaining a patent may still be useful as the

⁵² Memorandum from the World Bus. Council for Sustainable Dev., *Dow and Fuji Xerox Join Eco-Patents Commons, Xerox Pledges Additional Patent to Help the Planet* (Oct. 20, 2009), <http://www.wbcds.org/Plugins/DocSearch/details.asp?DocTypeId=33&ObjectId=MzYxMTQ> (listing Bosch, Dow, DuPont, Fuji-Xerox, IBM, Nokia, Pitney Bowes, Ricoh, Sony, Taisei, and Xerox as contributing companies).

⁵³ ECO-PATENT COMMONS, *ECO-PATENT COMMONS: A LEADERSHIP OPPORTUNITY FOR GLOBAL BUSINESS TO PROTECT THE PLANET 7* (2008), available at http://www.wbcds.org/DocRoot/RToiFpijTJHO8Hef4N9x/Eco-PatentCommonsBrochure_March 2009.pdf.

⁵⁴ *Id.*

⁵⁵ World Business Council for Sustainable Development, *supra* note 51 (search returns 100 patents).

⁵⁶ Green Xchange, <http://greenxchange.force.com> (last visited Mar. 1, 2010); see also Science Commons, <http://sciencecommons.org/projects/patent-licenses> (last visited Mar. 1, 2010) (indicating Creative Commons' partnership with Green Xchange).

⁵⁷ Mary Tripsas, *Everybody in the Pool of Green Innovation*, N.Y. TIMES, Nov. 1, 2009, at BU5.

⁵⁸ Rémi Lallement, *Le Rôle des Droits de Propriété Intellectuelle Dans les Enjeux Post-Kyoto*, in POLITIQUE CLIMATIQUE: UNE NOUVELLE ARCHITECTURE INTERNATIONALE 316 (Conseil D'analyse Economique, No. 87, Oct. 2009), available at <http://www.cae.gouv.fr/IMG/pdf/087.pdf>.

⁵⁹ See World Business Council for Sustainable Development, *supra* note 51.

⁶⁰ See generally Council Directive 2003/98, On the Re-use of Public Sector Information, 2003 O.J. (L 345) 90 (EC) (establishing a minimum set of rules on the re-use and commercial exploitation of documents that are held by public-sector bodies of the European Union's Member States and generally accessible).

⁶¹ See JOHN H. BARTON & GEORGE E. OSBORNE, INT'L CTR. FOR TRADE & SUSTAINABLE DEV., INTELLECTUAL PROPERTY AND ACCESS TO CLEAN ENERGY TECHNOLOGIES IN DEVELOPING

technology is then disclosed efficiently as required by the patent laws.⁶² But the publication of scientific papers containing a disclosure of the inventions could still do the trick, thereby avoiding the costly and long patenting process.⁶³ Surely this would be welcome savings at a time when most nations badly need to make some. Another related possibility is for states to “exchange” their patents. Let’s imagine the American government has a patent on wind technology and that of China has one on solar technology, they could simply give a free licence to each other on their respective patents, at no cost to any of the parties.

This sort of cooperation between inventors could also be done privately as well and is highly recommended.⁶⁴ This means cooperation rather than competition and could be a problem in terms of EU competition law.⁶⁵ However, the Technology Transfer Block Exemption⁶⁶ allows some collaboration without breaching competition laws and article 81(3) ECT (now 101(3) TFEU) also allows for cooperation to advance technological progress so long as the agreement allows consumers a fair share of the resulting benefit, the restrictions of the collaboration agreement are indispensable to the attainment of these objectives and the agreement does not afford the undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.⁶⁷ This sort of cooperation is in fact almost mandated by the principle of environmental law embedded in many environmental treaties (such as the Rio Declaration and the United Nations Framework Convention on Climate Change (“UNFCCC”)) namely Common But Differentiated Responsibility (“CBDR”).⁶⁸ This principle means that developed countries must help developing

COUNTRIES: AN ANALYSIS OF SOLAR PHOTOVOLTAIC, BIOFUEL AND WIND TECHNOLOGIES xii (2007), available at http://www.iprsonline.org/unctadictsd/docs/BARTON_DEC_2007.pdf (pleading for the licensing of environmentally-friendly of publicly funded inventions similarly to the “humanitarian clauses . . . considered in the medical and agricultural areas”). *Contra* IAN HARVEY, CLIMATE GROUP, INTELLECTUAL PROPERTY RIGHTS: THE CATALYST TO DELIVER LOW CARBON TECHNOLOGIES 8 (2008), available at http://www.theclimategroup.org/_assets/files/Intellectual-Property-Rights.pdf (indicating that the public sector should patent its inventions but choose what to do with its patents, i.e. ask for a price or not).

⁶² 35 U.S.C. § 112 (2006) (requiring disclosure of an invention’s written description, instructions enabling the invention to be made and used, and the inventor’s contemplated best mode); European Patent Convention, art. 83, Oct. 5, 1973, 1065 U.N.T.S. 199 (*revised at* the Convention on the Grant of European Patents Nov. 29, 2000) [hereinafter EPC], available at <http://www.epo.org/patents/law/legal-texts/html/epc/1973/e/ar83.html> (requiring a “sufficiently clear and complete” disclosure of the invention).

⁶³ See generally EUROPEAN RESEARCH ADVISORY BOARD, SCIENTIFIC PUBLICATION: POLICY ON OPEN ACCESS (2006), available at http://ec.europa.eu/research/eurab/pdf/eurab_scipub_report_recom_m_dec06_en.pdf (explaining the benefits to the scientific research system by making research results freely available through open access policies).

⁶⁴ See BERNICE LEE ET AL., CHATHAM HOUSE, WHO OWNS OUR LOW CARBON FUTURE?: INTELLECTUAL PROPERTY AND ENERGY TECHNOLOGIES 59 (2009), available at <http://www.chathamhouse.org.uk/IP>.

⁶⁵ TFEU, *supra* note 15, arts. 101–02.

⁶⁶ Commission Regulation 772/2004, 2004 O.J. (L 123) 11, 11–12 (EC) (discussing the application of Article 81(3) of the Treaty to categories of technology transfer agreements).

⁶⁷ TFEU, *supra* note 15, art. 101.

⁶⁸ United Nations Framework Convention on Climate Change, Dec. 11, 1997, *Kyoto Protocol To The United Nations Framework Convention on Climate Change*, art. 10 [hereinafter *Kyoto Protocol*], available at <http://unfccc.int/cop3/resource/docs/cop3/protocol.pdf>; Conference on Environment and Development, June 3–14, 1992, *Rio Declaration on Environment and*

countries through technology transfer and financial assistance and both developed and developing countries are expected to cooperate to meet the goals of the treaties.⁶⁹ The reason is that developed countries have more responsibility because historically they caused more emissions.⁷⁰ The developing countries must only take steps commensurate with their capabilities to meet the objective of the treaties.⁷¹ One way to help developing countries in terms of technology transfer is not to lessen intellectual property protection as such but to grant free or low cost licenses on certain technologies for a set period to developing and least developed countries. For instance, carbon capture and storage (“CCS”) seems to be the quickest way to reduce carbon emissions whilst we build sufficient and efficient wind and solar farms. However, this technology is so recent that patents are still in force.⁷² We can’t wait twenty years to act, so the developed world may have to share some of its intellectual property with the developing world, at least for little while.

II. NON-IP RELATED SOLUTIONS

There are also some other (strong) non-IP related medicaments for curing global warming. The following list of measures is by no means exhaustive but includes some of the most important ones. First, as has been noted by many, not all climate-friendly technologies are protected.⁷³ Some of them have seen their patents expire and others have never been patented.⁷⁴

Development, princ. 7 [hereinafter *Rio Declaration*], available at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163>.

⁶⁹ *Kyoto Protocol*, *supra* note 68, arts. 10–11; *Rio Declaration*, *supra* note 68, princ. 7.

⁷⁰ *Fourteen Days*, *supra* note 1 (“[T]he rich world is responsible for most of the accumulated carbon in the atmosphere – three-quarters of all carbon dioxide emitted since 1850.”); Kaitlin Mara, *Bangkok Climate Meeting Leaves Political Issues, Compulsory Licences Unresolved*, INTELL. PROP. WATCH, Oct. 12, 2009, <http://www.ip-watch.org/weblog/2009/10/12/bangkok-climate-meeting-leaves-political-issues-unresolved-compulsory-licence-debate-rising/> (“Past UN discussions on this issue place the onus on developed nations to take the lead, citing historical responsibility for the problem.”).

⁷¹ *See, e.g., Rio Declaration*, *supra* note 68, princ. 11.

⁷² *E.g.*, U.S. Patent No. 7,596,952 (filed Sept. 29, 2003) (issued Oct. 6, 2009). A search in European Patent Office database (www.ep.espacenet.com) on January 23, 2010, reveals only twelve patents for carbon capture (incidentally none for both carbon capture and storage), most of them dating from 2009, the first one dating from 2007. Most inventors are big energy companies such as General Electric, Gas de France, Siemens, Alstom, as well as some universities and research centres such as the Institut Francais du Pétrole, Harvard University, Penn State University, and the University of Goettingen.

⁷³ *See, e.g., Yvo De Boer*, Executive Sec’y, United Nations Framework Convention on Climate Change, Presentation at the European Patent Forum and Inventor of the Year 2008, slide 11 (May 7, 2008), [http://documents.epo.org/projects/babylon/eponet.nsf/0/9D0B55A30B48010FC12574440046F844/\\$File/yvo_de_boer_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/9D0B55A30B48010FC12574440046F844/$File/yvo_de_boer_en.pdf); Michelle Childs, Head of European Affairs, Presentation at the European Patent Forum and Inventor of the Year 2008, slide 2 (May 7, 2008), [http://documents.epo.org/projects/babylon/eponet.nsf/0/02A8FDA1794A3877C125744400467022/\\$File/michelle_childs_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/02A8FDA1794A3877C125744400467022/$File/michelle_childs_en.pdf).

⁷⁴ Sinfah Tunsarawuth, *IP Protection No Barrier to Green Technology Transfer, Says Key Negotiator*, INTELL. PROP. WATCH, Oct. 5 2009 [http://www.ip-watch.org/weblog/2009/10/05/ip-protection-no-barrier-to-green-technology-transfer-says-key-negotiator/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+ip-watch+\(Intellectual+Property+Watch\)](http://www.ip-watch.org/weblog/2009/10/05/ip-protection-no-barrier-to-green-technology-transfer-says-key-negotiator/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+ip-watch+(Intellectual+Property+Watch)) (quoting

Of course, another way to reduce emissions is to help least developed and developing countries financially in their efforts to do so.⁷⁵ One way to do so is to finance the building of renewable energy plants on their land. Another way is to financially help to reforest their land. And there are many others. It is not as expensive as one may imagine. According to the World Bank's Global Report of the Economics of Adaptation to Climate Change Study, the cost for developing countries of adapting, between 2010 and 2050, to an approximately two degrees Celsius warmer world by 2050 is between US\$75 billion to US\$100 billion a year.⁷⁶ This amount is about the same as that of the foreign aid that developed countries already give developing countries annually.⁷⁷

Another type of measure involving IPR can be used indirectly helping any country in its adaptation to and mitigation of climate change by forcing countries to respect their environmental commitments. Suspension of IPR, as was used by Antigua and Barbuda in the WTO dispute that opposed them to the United States,⁷⁸ can have an enormous impact. If it appears that a country does not cut its emissions as much as it has committed to,⁷⁹ then the other countries could temporarily suspend the protection the non-abiding country benefits from through its patents. This would be especially useful for small developing nations which have the most to fear from climate change (e.g. Bangladesh or island states). Such suspension could be based on articles XX and/or XXI of the General Agreement of Tariffs and Trade ("GATT") which allow respectively general and security exceptions to GATT/WTO rules.⁸⁰ These exceptions include the protection of human, animal or plant life or health, the conservation of exhaustible natural resources and the protection of the state's "essential security interests . . . taken in time of war or other emergency in international relations."⁸¹ Therefore, if it is necessary for a country to use a patented

Kunihiko Shimada, "a co-chair of a subgroup working on agreement text on the issue of development and transfer of technology in [then] current two-week talks on climate change in Bangkok.")

⁷⁵ See *Fourteen Days*, *supra* note 1.

⁷⁶ SERGIO MARGULIS ET AL., GLOBAL REPORT OF THE ECONOMICS OF ADAPTATION TO CLIMATE CHANGE STUDY, THE COSTS TO DEVELOPING COUNTRIES OF ADAPTING TO CLIMATE CHANGE: NEW METHODS AND ESTIMATES 1, 12 (2009) (consultation draft), available at <http://siteresources.worldbank.org/INTCC/Resources/EACCReport0928Final.pdf>.

⁷⁷ *Id.* at 1.

⁷⁸ See Dispute Settlement Body Report, *United States—Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, WT/DS285/22 (June 22, 2007), available at 2007 WL 1877628.

⁷⁹ Probably a reasonable level should be set. Falling 1 or 2 percent short of the target should probably not be enough to suspend the failing country's IPR. Of course here the mechanism would not function as a retaliation measure within the framework of the WTO agreements, as commitment to reduce emissions are not part of the WTO legal framework but of other multilateral agreements outside the WTO framework. See, e.g., United Nations Conference on Environment and Development: Framework Convention on Climate Change art. 4, May 9, 1992, 31 I.L.M. 849.

⁸⁰ General Agreement on Tariffs and Trade arts. XX-XXI, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 (revised at Marrakesh Agreement Establishing the World Trade Organization Apr. 15, 1994), available at <http://www.worldtradelaw.net/uragreements/gatt.pdf>.

⁸¹ *Id.* Article XX provides:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

technology which is crucial to the protection of its environment in the sense that it is necessary to adapt to climate change because the non-abiding country's emissions will contribute to the country's environmental damage, and the patentee either refuses to grant a licence or only proposes astronomic prices, the country could suspend the protection afforded by patent and other related IPR, in other words bypass the patentee's refusal and freely use the patented technology until the non-abiding country meets its emissions targets.⁸² Alternatively, states could use the security exception, as it clearly allows the state to take *any* action which it considers necessary for the protection of its essential security interests in case of emergency in international relations.⁸³ Using IP-protected technology unavailable at a reasonable price could be such action and climate change can already be considered an emergency in international relations. The WTO-consistency of these types of measures is reinforced by the fact that, according to the WTO itself, sustainable development and the protection and preservation of the environment are some of its fundamental goals.⁸⁴ This is even enshrined in the Marrakesh Agreement establishing the WTO.⁸⁵

Another important change which would greatly influence policy, and thus the law, is to have a green economic index.⁸⁶ Currently economic activity and the gross domestic product ("GDP") do not include a country's natural resources.⁸⁷ The calculation of the GDP even counts activities which harm the environment as good for the economy.⁸⁸ For instance, jammed roads increase GDP through the increase sales of fuel but harm the environment.⁸⁹ The Commission on the Measurement of Economic Performance and Social Progress ("CMEPSP") recommends that we should

... (b) necessary to protect human, animal or plant life or health;

... (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.

Id. art. XX. Article XXI provides in relevant part that "Nothing in this Agreement shall be construed . . . (b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests . . . (iii) taken in time of war or other emergency in international relations . . ." *Id.* art. XXI.

⁸² See *id.* art. XX(b),(g).

⁸³ See *id.* art. XXI(b)(iii).

⁸⁴ See Agreement Establishing the World Trade Organization pmbl., Apr. 15, 1994, 33 I.L.M. 1144, 1867 U.N.T.S. 3, available at http://www.wto.org/english/docs_e/legal_e/04-wto.pdf.

⁸⁵ *Id.*; see also WORLD TRADE ORG., THE MULTILATERAL TRADING SYSTEM AND CLIMATE CHANGE, available at http://www.wto.org/english/tratop_e/envir_e/climate_change_e.pdf ("In the Marrakesh Agreement establishing the WTO, members established a clear link between sustainable development and disciplined trade liberalization – in order to ensure that market opening goes hand in hand with environmental and social objectives.").

⁸⁶ See Mike Holderness, *A Common Treasury for All to Live Upon: With the Flaws in Economic Measurements Like GDP Exposed for All to See, Do We Need Radical New Ways to Assess Economic Activity?*, NEW SCIENTIST, Oct. 24, 2009, at 30–31.

⁸⁷ See *id.* at 31.

⁸⁸ *Id.* at 30.

⁸⁹ *Id.*

not measure economic production but human well-being.⁹⁰ The good news is that the European Commission has already adopted many of the CMEPSP's proposals.⁹¹

III. THE U.S.'S CONTRIBUTION

What is the U.S.'s contribution to the problem of climate change as far as patent law and patents are concerned? In fact, the U.S. was a pioneer in this area and had several systems in place already in the 1970s.

First, the Clean Air Act provides for a compulsory licence on patents which help in meeting certain air emissions standards.⁹² This federal law dates from 1970 and is now codified in 42 U.S.C. § 7608.⁹³ The system works as follows. A private individual can apply to the Environmental Protection Agency and the United States Attorney General to require that the patent in question be licensed.⁹⁴ The applicant must comply with three conditions, namely: (1) the patented product or process must be "used or intended for public or commercial use and not otherwise reasonably available," (2) "there are no reasonable alternative methods" in order to comply with the said emissions standards, and (3) failure to obtain the license would result in a "substantial lessening of competition or tendency to create a monopoly in any line of commerce in any section of the country."⁹⁵ If the conditions are met, the Attorney General can ask the district court for the district in which the patent owner resides, does business, or is found to issue an order requiring the patent owner to licence it on reasonable terms and conditions.⁹⁶ Writing in 2005, a commentator noted that in thirty-five years, the system apparently had never been used, adding that this finding "supports the conclusion that environmental innovation will be licensed relatively efficiently without the necessity of compulsory licensing."⁹⁷ A Westlaw search up to now gives no further result. Indeed, some of the conditions set out in the act will generally not be met, for instance because it must involve a substantial lessening of competition.⁹⁸ Also a reasonably minded patent owner will licence its

⁹⁰ See JOSEPH E. STIGLITZ ET AL., REPORT BY THE COMMISSION ON THE MEASUREMENT OF ECONOMIC PERFORMANCE AND SOCIAL PROGRESS 41 (2009), available at <http://www.ofce.sciences-po.fr/pdf/documents/rapport.pdf>; Holderness, *supra* note 86, at 30.

⁹¹ CAMILLA ADELLE & MARC PALLEMAERTS, EUROPEAN COMMISSION, SUSTAINABLE DEVELOPMENT INDICATORS: OVERVIEW OF RELEVANT FP-FUNDED RESEARCH AND IDENTIFICATION OF FURTHER NEEDS 46–47 (2009), available at http://ec.europa.eu/research/sd/pdf/sdi_review.pdf.

⁹² 42 U.S.C. § 7608 (2006); see Mandel, *supra* note 45, at 60 n.40 ("The air emission standards pursuant to which a compulsory license may be sought are those established in 42 U.S.C. §§ 7411, 7412, and 7521.").

⁹³ See Clean Air Act of 1970, Pub. L. No. 91-604, 84 Stat. 1676, 1708–09 (1970) (codified as amended at 42 U.S.C. § 7608). The latest version of the act is available at <http://www.epa.gov/air/caa/>.

⁹⁴ 42 U.S.C. § 7608; 40 C.F.R. § 95.2 (2009).

⁹⁵ 42 U.S.C. § 7608. "If a compulsory license were granted, the patent owner is entitled to 'adequate' compensation based on the economic value of the license. 40 C.F.R. § 95.4(a)(7). The license is nonexclusive, non-assignable, and restricted in scope and duration as necessary to fulfill the Clean Air Act's emission requirements. *Id.* § 95.4(a)(1)–(3) [*sic*]." Mandel, *supra* note 45, at 60 n.41.

⁹⁶ 42 U.S.C. § 7608(2); 40 C.F.R. § 95.4(b).

⁹⁷ Mandel, *supra* note 45, at 60.

⁹⁸ 42 U.S.C. § 7608(2).

patent voluntarily or because of the threat posed by the provision.⁹⁹ The act has not been challenged before the WTO panels so it can be presumed WTO-compliant.¹⁰⁰

Long before the UK, the U.S. had a fast track system. 37 C.F.R. § 1.102(c) (2005) (Code of Federal Regulations Patents, Trademarks, and Copyrights) states that “[a] petition to make an application special may be filed [on the basis] . . . [t]hat the invention will materially: (i) [e]nhance the quality of the environment; (ii) [c]ontribute to the development or conservation of energy resources”¹⁰¹ However, it seems that this provision has not been used.¹⁰² There is little evidence as to why.¹⁰³ But one main probable cause is that “[t]he research and development costs, and time devoted to most environmental innovation, likely substantially exceed the delays and expense of patent prosecution. Consequently, improvements through streamlining patent prosecution would not significantly increase incentives for environmental innovation.”¹⁰⁴ Another cause could be that applicants filing environmental inventions are simply unaware of the special regime.¹⁰⁵

Most recently, the USPTO took a further initiative in this direction. Normally, green inventions cannot benefit from the accelerated examination program unless they comply with its requirements.¹⁰⁶ But since December 2009, the USPTO has implemented a pilot program for certain inventions, namely for applications pertaining to green technologies including greenhouse gas reduction (this includes applications pertaining to environmental quality, more efficient utilization and conservation of energy resources, discovery or development of renewable energy resources or greenhouse gas emission reduction).¹⁰⁷ Under the new Green Technology Pilot Program, “renewable energy resources” includes

hydroelectric, solar, wind, renewable biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, and municipal solid waste, as well as the transmission, distribution, or other services directly used in providing electrical energy from these sources. The second category would include inventions relating to the reduction of energy consumption in combustion systems, industrial equipment, and household appliances. The third category listed above would include, but is not limited to, inventions that contribute to (1) advances in nuclear power generation technology, or (2) fossil fuel power generation or industrial processes with greenhouse gas-abatement technology (*e.g.*, inventions that significantly improve safety and reliability of such technologies).¹⁰⁸

⁹⁹ *See id.* § 7608(1)–(2).

¹⁰⁰ K. RAVI SRINIVAS, CLIMATE CHANGE, TECHNOLOGY TRANSFER AND INTELLECTUAL PROPERTY RIGHTS 28 (Research & Info. Sys. for Developing Countries, RIS-DP # 153, 2009), available at http://www.ris.org.in/dp153_pap.pdf.

¹⁰¹ 37 C.F.R. § 1.102(c)(2) (the text remains the same in the 2009 version).

¹⁰² *See* Mandel, *supra* note 45, at 62.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 62 n.54.

¹⁰⁶ 37 C.F.R. § 1.102 (2009).

¹⁰⁷ Pilot Program for Green Technologies Including Greenhouse Gas Reduction, 74 Fed. Reg. 64,666 (Dec. 8, 2009).

¹⁰⁸ *Id.* at 64,667.

According to the Green Technology Pilot Program, the examination of these applications will be accelerated even if they do not meet all of the current requirements of the accelerated examination program.¹⁰⁹ The fee required for petitions to make special is also waived under the program.¹¹⁰ There is a standard to meet. Only “[p]atent applications for inventions which *materially enhance* the quality of the environment under the conditions specified in item V of MPEP § 708.02” will benefit from the new scheme.¹¹¹ Item V of the MPEP § 708.02 (petition to make special, environmental quality) explains the meaning of “materially enhancing the quality of the environment” under “37 CFR 1.102 Advancement of examination.”¹¹² Basically, the USPTO will grant special status to all applications which contribute “to the restoration or maintenance of one of the basic life-sustaining natural elements,” i.e., air, water, and soil.¹¹³ If it is not clear from the disclosure that the claimed invention contributes to the “restoration or maintenance of one of the basic life-sustaining natural elements, the petition must be accompanied by a statement . . . explaining how the materiality standard is met.”¹¹⁴ The standard

does not permit an applicant to speculate as to how a hypothetical end-user might specially apply the invention in a manner that could materially enhance the quality of the environment. Nor does such standard permit an applicant to enjoy the benefit of advanced examination merely because some minor aspect of the claimed invention may enhance the quality of the environment¹¹⁵

including (1) the development of renewable energy or energy conservation, or (2) greenhouse gas emission reduction.¹¹⁶

The U.S. is thus already quite advanced in the greening of its patent law. However, it can and should do even more. It should also introduce a ban on inventions which prejudice the environment at least equivalent but, if possible, even better than article 53(a) of the European Patent Convention (“EPC”).¹¹⁷ The U.S. is one of only a small minority of states which does not include a provision excluding from patentability inventions which may harm the environment (i.e. exclude them even if it is not yet scientifically certain that they do but there is already some

¹⁰⁹ *Id.* at 64,666.

¹¹⁰ *Id.* at 64,666–67.

¹¹¹ *Id.* at 64,667 (emphasis added).

¹¹² MPEP, *supra* note 36, § 708.02; *see also* 37 C.F.R. § 1.102 (c)(2)(i) (2009) (requiring an invention to materially enhance the quality of the environment).

¹¹³ MPEP, *supra* note 36, § 708.02.

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ Pilot Program for Green Technologies Including Greenhouse Gas Reduction, 234 Fed. Reg. at 64,668.

¹¹⁷ EPC, *supra* note 62, art. 53(a). Article 53(a) of the EPC provides that “European patents shall not be granted in respect of: (a) inventions the commercial exploitation of which would be contrary to ‘*ordre public*’ or morality” provided that the exploitation “shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States.” *Id.* Such provision should hopefully also catch inventions which prevent recycling, as it could now be said to be against morality or *ordre public*. *Id.* For more legal certainty, a provision should be specifically included in the statutory law to this effect.

scientific evidence to this effect).¹¹⁸ Otherwise, it will still be possible to obtain patents for inventions harming the environment and in fact the USPTO will be obliged by law to grant patents for polluting inventions.

CONCLUSION

All over the world, some - important - patent offices have started to green their patent laws by introducing fast track systems.¹¹⁹ This can only be applauded. However, it is doubtful whether the initiatives will be sufficient or even at all used. Some studies have shown that many applicants play with time purposively extending the period of uncertainty (scope of invention, breadth of claims, etc.). Whilst this seems to be the case more in critical fields, such as ICT standardization, it is not impossible that applicants (will) play such games in the field of environmental innovation as well. It is too early to find out as both the UK and U.S. initiatives only date from 2009. Only time will tell. Extending the term of patent protection might not actually work as an incentive to invent green. According to Mandel, the majority of environmentally-friendly inventions are outdated before the expiration of the patent term.¹²⁰ Thus, lengthening the term of protection would not significantly increase incentives to invent. Reduction or waiver of patent offices' fees, like faster examination, may not be enough to increase the incentive of ecological inventors. As noted above, the R&D costs and time devoted to environmental inventions are likely to exceed the delays and expense of patent prosecution.¹²¹

These findings are no auspicious omen. Whilst we already have a good number of green technologies available in the public domain, most remain quite expensive and thus cannot yet beat the price of oil and gas.¹²² We therefore need more cost-effective ways to produce energy and these will require inventions, which if patentable will be subject to the patentees' power for twenty years.¹²³ Unless there is competition in the market the price of these technologies will thus remain high. Also the quickest fix to the increase of GHG seems to be CCS, which will remain patented

¹¹⁸ Compare 35 U.S.C. § 101 (2006) (providing the definition of patentable subject matter in the U.S.), with EPC, *supra* note 62, art. 53(a) (requiring that an invention not be "contrary to *ordre public* or morality"), and Andean Community Decision 486: Common Intellectual Property Regime art. 20(b), Dec. 1, 2000, *available at* <http://www.sice.oas.org/Trade/Junac/Decisiones/DEC486ae.asp#tit2> (allowing no patents that exploit "human or animal life or health," and also to "avoid serious prejudice to plant life and the environment"). For more details see Shawn Kolitch, *The Environmental and Public Health Impacts of U.S. Patent Law: Making the case for Incorporating a Precautionary Principle*, 36 ENVTL. L. 221, 248–55 (2006).

¹¹⁹ Pilot Program for Green Technologies Including Greenhouse Gas Reduction, 74 Fed. Reg. 64,666 (Dec. 8, 2009); Press Release, *supra* note 29.

¹²⁰ Mandel, *supra* note 45, at 61.

¹²¹ *Id.* at 62.

¹²² See Clifford Krauss, *Alternative Energy Suddenly Faces Headwinds*, N.Y. TIMES, Oct. 20, 2008, at B1 (indicating that the falling price of oil lowers the incentive to explore expensive renewable energy).

¹²³ 35 U.S.C. § 154(a)(2) (2006) (stating that U.S. patents expire twenty years from the initial filing date); EPC, *supra* note 62, art. 63 ("The term of the European patent shall be 20 years from the date of filing of the application.").

for around twenty years from now.¹²⁴ The problem is that we cannot wait twenty years to solve global warming. This means that patents are just one part of the equation. Therefore, all the solutions noted above need to be combined to achieve the most efficient way of reducing our GHG emissions. More than patents, what will be needed is collaboration, funding, goodwill and above all individual and collective commitment. We will also have to change our consumption habits, at least for a while, whilst we move to renewable energy. So at least to the relief of most people in the West, “good old capitalism,” albeit not the wild and excessive version of it which may include “consumerism,” can survive as long as it is green(ed). For the moment, we still have Mother Nature working for us. Let us grab this short instant that is left to us now and use Nature’s free, resourceful and beautiful assets in the most effective and respectful way before it’s too late. Otherwise, we will paradoxically be the most advanced and “intelligent” but also stupidest species on earth.¹²⁵

¹²⁴ 5 U.S.C. § 154(a)(2); *e.g.*, U.S. Patent No. 7,596,952 (filed Sept. 29, 2003) (issued Oct. 6, 2009).

¹²⁵ *See* The Age of Stupid, <http://www.ageofstupid.net> (last visited Mar. 7, 2010). After all the stages through which man has evolved from the Stone Age to the Industrial Age, if we don’t do anything now, we might enter the last one, the age of stupid.