The Role of Intellectual Property Policy in Creating a Global Sustainable Energy Infrastructure

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Abstract - This article examines the role of national and transnational intellectual property policy on the development of a global sustainable energy infrastructure. A review of current intellectual property policy for selected jurisdictions is presented. The issues of patent pools, open source development, and government intervention are all explored. The author finds that though leadership on the issue is lacking and current government policies are not designed to support the requirements of a transition to sustainable energy. National policies may be inconsistent or completely absent. Furthermore, one nation’s policies can work at cross-purposes to other nations’ policies. A coherent policy outline is required for the timely development of the transition to global sustainable energy. The author presents the components of such a policy.

I. INTRODUCTION

At the risk of overstating its import, intellectual property is the throttle of the global innovation engine. Applied properly, the throttle can accelerate innovation and support business, governmental, and humanitarian goals. Set incorrectly, it can stifle innovation or exacerbate inequality. Intellectual property policy, therefore, is a key piece of the framework under which it must necessarily operate. That is, there are significant business, governmental, and non-governmental organizational interests involved. Just because a thing is difficult, however, does not mean it can be forever ignored.

Ignoring the issue is what most policy-making bodies have chosen to do, however. Neither the Organisation for Economic Cooperation and Development (OECD) nor the United Nations (UN) nor any of their child organizations have developed intellectual property policies on sustainable energy [1]. Individual nations have also been mostly silent on the issue, defaulting to their standard national policies on intellectual property [2]. The issue of global sustainable energy, however, presents a special situation that a patchwork of national policies and transnational treaties cannot address.

II. UNITED STATES AND EUROPEAN UNION INTELLECTUAL PROPERTY POLICY

As global leaders, both the United States and European Union have important roles to play on the issue of intellectual property policy. Unfortunately, both have failed to lead an effort to develop a coherent policy. Instead, each has relied on its current policies on intellectual property.

In the United States, patents are granted for a period of 20 years from the date of application. The granting of a patent endows the holder with the right to exclude others from selling products made by the patented process or of the patented design. To be granted a patent, an invention must satisfy three criteria: utility, novelty, and non-obviousness [3].

Critics of US patent policy point out several problems with its current direction. Recently, the right to patent methods of doing business and software was granted by US courts, helping to create ‘patent thickets.’ The US Patent and Trademark Office (USPTO) is backlogged with years of applications. Moreover, many critics believe it is simply too easy to be granted a patent in the United States [4].

In 2007, though, the US Supreme Court issued a landmark intellectual property decision [5] raising the bar for obviousness. The Court ruled that simply combining elements from the public domain is insufficient grounds for a patent if it yields “predictable results.” This ruling has important ramifications for renewable energy intellectual property because most of the fundamental elements of sustainable energy science have long been off patent. In many cases, improvements in sustainable energy infrastructure are incremental and build off this mature, fundamental science or are a combination of older technologies or previous technology, repurposed [6]. The result is questions about whether advances in the area are...
‘novel enough’ and if they build off public domain science or still-patented work.

In the European Union (EU), the intellectual property policy situation is somewhat complicated by the fact that the Union, as a transnational body, is itself composed of nations with their own intellectual property histories and policies. The EU has made a concerted effort to standardize its industrial property rights with policies designed to support innovation while still protecting individual rights. Its directive on the enforcement of intellectual property rights was adopted in 2004 and reformulated in 2007 [7].

Still, there has been no effort by the EU to lead the establishment of a similar policy on a global scale. The implications for the establishment of a global sustainable energy infrastructure are plain. The EU’s policy on intellectual property rights is but one of many.

There are at least three reasons why the US and EU (or, indeed, any governments) have been reluctant to lead the effort to develop a coherent global policy on intellectual property for sustainable energy. First, there is no precedent for the development of such a policy. To date, intellectual property policies have been developed on a national level or on a one-to-one treaty level known as ‘harmonization.’ There is simply no framework for how to go about developing an international policy on an issue such as this.

Second, nations and companies have a vested interest in withholding information about the economic costs and benefits of patents [8]. Companies want to maintain secrecy for obvious financial and business reasons. Nations, too, may be interested in a less-than-transparent accounting of their involvement. Governments have a role in financing research and development for a variety of social, economic, and military reasons – reasons they are often not interested in divulging.

Third, most nations with strong intellectual property policies see patents as an individual right, protected by the rule of law [9]. Strong emotion may be involved even though many patents are granted to individuals working for universities or companies. It is often these assignees that benefit from patents granted, not individual inventors. Despite this fact, governments are loath to do anything resembling handing over power to determine its citizens’ rights. Moreover, even though many companies are multinational, there is a strong inclination of governments to err on the side of the ‘home team’ and craft policies to the advantage of ‘their’ companies [10].

III. CURRENT AND EMERGING POLICY DRIVERS

Beyond the various national intellectual property policies, several other, non-governmental, drivers are involved in the issue. In some ways, these drivers have evolved in the sustainable energy market because of the lack of over-arching policy direction from governmental organizations. Curiously, in other ways they are the direct result of what existing national patent policy does exist.

In an effort to achieve their business objectives, companies have been making greater use of two quite different intellectual property concepts – patent pools and open source work. In a response to frequent litigation, groups of companies are increasingly using patent pools to protect their market positions. A patent pool is not itself a novel idea. Patent pools were used as far back as the 1800s to mitigate risk and save time and money. Essentially, a patent pool is a consortium of like-industry companies who band together for the purpose of allowing joint, non-exclusive licensing of intellectual property.

Patent pools are seeing use in sustainable energy because of the large number of organizations attempting to develop similar technologies or products and because those products must work seamlessly together and with existing power infrastructure. This is an especially important point as it is commonly accepted that a migration to sustainable energy sources will involve the decentralized generation of that energy. With patent pools, companies can develop innovative designs with less concern about whether and how they will integrate them into ‘the grid.’

An almost contrary approach called ‘open source’ is taken by other organizations. Open sourcing is most famously identified with the computer operating system Linux. The idea is to freely license or release into the public domain the science or technology in question. Any person skilled in the area can modify or add to the core technology. This idea attempts to take advantage of the emerging recognition that ‘most of the brightest people work somewhere else.’ This realization is fundamental to a corollary movement called ‘open innovation’ in which companies attempt to foster connections with collaborators outside their organization’s walls.

Open source is viable in sustainable energy because, as previously mentioned, many new design ideas are aggregates of several prior designs. As a result, these new designs require expertise from a wide variety of engineering disciplines. This is just the type of scenario open source work does well. In the case of renewable energy, however, there is no direct monetary reward for participating in the project. As SETI@home and Grid.org have demonstrated, this need not be an obstacle in cases where the project is working toward a ‘greater good’ as the development of renewable energy clearly is.

IV. THE COMPONENTS OF A COHERENT INTELLECTUAL PROPERTY POLICY

Pointing out a system’s weaknesses is easy; developing solutions is where the real work is done. The development of a coherent intellectual property policy for renewable energy is no different. Several key components of such a policy can be named:

1. Standardize, as much as possible and practical, the definition of what is patentable. Nations typically
do this on a one-to-one basis. A broader, multinational agreement would clearly be preferable.

2. Make patent review as quick a process as possible. Beyond the usual remedies, in the US a ‘Petition to make special’ can speed the prosecution of an application that “contribute[s] to the development or conservation of energy resources.”

3. Ease the way for technology licensing and acquisition. Again, easier cross-border licensing would aid global energy infrastructure development.

4. Facilitate collaboration between organizations. Easing the ability to form inter-nation joint ventures, for example, would lower barriers to participation for organizations of limited means like university development offices and start-ups.

5. Strengthen intellectual property rights in developing nations. This idea has its limits, however; patent protection should not inhibit innovation.

The development of a coherent global intellectual property policy is critical to the successful migration to sustainable energy. Sadly, there is currently little leadership in this area. With greater attention to the subject, thoughtful policy development, and concerted effort on implementation, this obstacle can be overcome.

REFERENCES