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Lawrence Rudolph

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Overview of Federal Technology Transfer*

Lawrence Rudolph**

Introduction

This article is designed to place federal technology transfer policies and procedures in context by reviewing statutes, pronouncements and executive orders, which have facilitated the development of both government patent policy and the transfer of federally-owned technology.

Federal technology transfer has two components: Government patent policy, described as the "input" side since it controls federal agencies' acquisition of rights to inventions, and technology-transfer policies and authorities that form the "output" side. Some problems with federal technology transfer stem from the fact that contradictory policies have been adopted for these two components.

The first part of this article reviews federal technology transfer law over the past thirteen years; the second illustrates current policies and procedures of some federal agencies.

Brief History of Federal Technology Transfer

"Input" Side

Long before Senators Bayh and Dole introduced the first version of their bill in the 95th Congress, many agencies, including the Department of Defense, the National Institutes of Health (NIH) and the National Science Foundation (NSF), already allowed contractors to retain patent rights to their inventions. Other agencies, such as the Department of Agriculture, the National Aeronautics and Space

* Opinions, findings and conclusions or recommendations expressed here are those of the author and do not necessarily reflect views of the National Science Foundation.

** Mr. Rudolph is Acting General Counsel of the National Science Foundation. He received his B.A. (English) from Adelphi University and his J.D. from Georgetown University.

Administration and the Department of Energy (DOE), however, had long-established policies, sometimes required by statute, of claiming ownership to inventions made with their support, “title in the government” policies. These agencies licensed the inventions on a non-exclusive, royalty-free basis, thus dedicating these inventions to the public, or with some exclusivity and subject to royalties.

Despite a Presidential Memorandum on Government Patent Policy issued by President Kennedy in 1963 and revised by President Nixon in 1971, there was no uniform government-wide treatment of inventions. Although a consensus in favor of leaving rights with inventing organizations slowly developed, agencies continued to go their separate ways under those memoranda.

Discomfort over the lack of uniformity with respect to government treatment of inventions, as evidenced by the concern in the academic research community that Joseph Califano, the Carter Administration’s first Secretary of Health, Education and Welfare, would change NIH’s “title in the contractor” policy, prompted the Bayh-Dole legislation.

Enacted by a “lame duck” Congress and President in December 1980, the Bayh-Dole Act,¹ required agencies to adopt what was then referred to as a “title in contractor” policy for small business and nonprofit organizations, such as universities. Thus, small businesses and nonprofit organizations were given a statutory right to choose to retain title to inventions made during federally-assisted research and development (R&D) so long as they were interested in patenting and attempting to commercialize those inventions.

This policy was based on a belief, supported by evidence gathered by a federal interagency committee,² that private entities, given the incentives of the patent system, would do a better job of commercializing inventions than federal agencies.

¹ P.L. 96-517, Ch. 18 of 35 U.S.C.

² Committee on Government Patent Policy of the Federal Council on Science and Technology, which was established to fulfill an annual reporting requirement in the 1971 Presidential Memorandum on Government Patent Policy, discussed below.

The Act for the first time established a largely uniform government-wide policy on the treatment of inventions made during federally-supported R&D. However, limited flexibility was provided as illustrated by agencies being able to continue excluding from coverage of the Act operating contracts for federal government-owned, contractor-operated (GOCO) facilities. Also, agencies were empowered, but not required, to leave invention rights with inventors when awardees did not want them; hence, different agencies adopted different practices concerning invention rights.

A little-remembered part of the Act is its endorsement of the 1971 Presidential Memorandum on Government Patent Policy and authorization of past and future dispositions of invention rights under it.³ This was deemed necessary by some to provide a statutory basis for disposing of government property, i.e., patent rights.

Although the "title in contractor" policy of Bayh-Dole was already that of the NSF and we have, in fact, done everything we can to allow our contractors and grantees to retain principal legal rights and the attendant incentives for commercialization, not everyone is happy with the Act's policy and effects.

Some Members of Congress still believe that things produced with public funds should be "dedicated to the public", that is, made available to everyone with no exclusive rights, i.e., no one should profit as a result of government funding. They fear the situation where "The government pays the cost of digging the mine, the contractor gets the gold, and the taxpayer gets the shaft!"

This raises interesting questions: Should no one profit from a federally-supported activity? Should there be just a little profit? As put by one bureaucrat, "Do you want us to fund only losers?"

Also, a few academics are unhappy with the Act because it explicitly encourages universities to commercialize inventions, focusing on profit rather than knowledge. Some have wondered if the academy sold its birthright for a mess of patents.

³ 35 U.S.C. § 210(c), amended in 1984 to refer to the 1984 Memorandum, discussed in the text.

Those most happy with the Act, of course, are those who conceived and promoted it, namely, large university and government intellectual property (IP) specialists.

President Reagan issued a February 1983 "Government Patent Policy" memorandum, as a result of the Administration's lack of success in persuading Congress to expand the Act's coverage. Agencies not prohibited by statute, were directed to treat all contractors, not just small businesses and nonprofit organizations, in accordance with the Act, thus expanding coverage to individuals and contractors of all sizes.

Amendments to the Act in 1984 provided that nonprofit GOCOs would be covered by the Act.⁴ These amendments also made the Department of Commerce (Commerce) the lead agency in U.S. government patent matters. As such, Commerce promulgated guidelines that all agencies must observe in disposing of rights to invention made during federally-supported R&D.⁵ Although these guidelines are mandatory only for awards to small businesses and nonprofit organizations, agencies, such as NSF, not subject to any conflicting statute, may apply them to all awardees as directed by the 1983 Presidential Memorandum.

Rules governing inventions made by federal employees, in contrast with those governing contractors' and grantees' inventions, have been both uniform and stable. President Truman's 1950 Executive Order, which presumes that agencies normally will take title to inventions made by their employees as part of their jobs, still governs.⁶ The only significant change was made in 1986, when section 15 of the Federal Technology Transfer Act of 1986 (FTTA) directed agencies to allow employed inventors to patent inventions if agencies do not intend to do so.⁷

⁴ 98 Stat. 3335, 3364-68; Title V of P.L. 98-620.

⁵ Part 401 of Title 37 C.F.R.

⁶ Exec. Order No. 10096, 3 C.F.R. 292 (1949-1953) and Parts 101 and 501 of 37 C.F.R. (Commerce regulations that implement it).

⁷ Section 15 of the Federal Technology Transfer Act of 1986, 15 U.S.C. § 3710(d).

"Output" Side

Two months before the Bayh-Dole Act was passed, Congress enacted the Stevenson-Wydler Technology Transfer Act of 1980 (Stevenson-Wydler).⁸ This is the basic federal technology law. A principal policy established by that Act is that agencies should ensure the full use of the results of the nation's federal investment in R&D. Another is that the government should strive, wherever appropriate, to transfer federally-owned or -originated technology to both state and local governments and to the private sector.

Some have questioned whether those policies are consistent with the "title in the contractor" policy of Bayh-Dole, which removes from agency control IP rights that would be useful in transferring and promoting federally-owned or-originated technology. Others wonder whether adding technology transfer as another mission for every agency is wise, since this inherently detracts from an agency's ability to focus on more important roles.

Once again, those who conceived and promoted the legislation, i.e., government IP specialists and federal laboratory administrators, were happy with the importance assigned to their roles.

Stevenson-Wydler required agencies to establish Offices of Research and Technology Applications (ORTAs) at their federal laboratories, and to devote a percentage of their R&D budgets to technology transfer. Another aspect of Stevenson-Wydler was the establishment of a Center for the Utilization of Federal Technology, which, in turn, coordinates ORTAs. This Center was established within Commerce, but, in 1986, was reassigned to what is now the National Institute of Standards and Technology (NIST).

Few persons outside the federal government, and not many within, realize that three sections of Stevenson-Wydler established rules for protecting and licensing federally-owned inventions.⁹ As the 1984 Amendments to Bayh-Dole¹⁰ did for extramural inventions, these

⁸ 15 U.S.C. §§ 3701-3714.

⁹ 35 U.S.C. §§ 207-209; implemented by the Department of Commerce regulation published as Part 404 of Title 37 C.F.R.

provisions removed all doubt as to the constitutionality of agencies patenting and exclusively licensing intramural inventions.

In 1986, the FTTA amended Stevenson-Wydler, but it affects only federal government-owned, government-operated labs (GOGOs), not GOCOs.¹¹ The most important feature of the FTTA was its authorization of cooperative R&D agreements (CRADAs) between federal laboratories and nonfederal entities.¹² It also authorized award programs for federal employees who were responsible for inventions and required royalty sharing with them whenever an agency retains ownership. As noted earlier, the FTTA also directs agencies to allow employees to patent inventions when the agencies themselves do not patent or otherwise promote commercialization.

To implement the FTTA, President Reagan issued Executive Order 12591, "Facilitating Access to Federal Technology" in April 1987.¹³ It directed federal agencies to encourage cooperative research and technology transfer through their laboratories. It also required technology access and IP protection to be considered in negotiating R&D agreements with foreign individuals or governments. This requirement is important in efforts to persuade other nations to provide, in law and practice, effective protection for IP and to allow U.S. scientists and engineers into their laboratories.

The National Competitiveness Technology Transfer Act of 1989¹⁴ amended the section governing CRADAs¹⁵ to authorize DOE GOCO laboratories to enter into CRADAs on the same basis as its GOGOs. It also created an exemption from the Freedom of Information Act¹⁶ for certain categories of information developed during cooperative

¹⁰ *Supra* note 4.

¹¹ Another widely-used acronym for a federally-funded R&D center, FFRDC, coined by the NSF, refers to facilities that derive most of their funding from the federal government no matter who owns or operates them.

¹² 15 U.S.C. § 3710(a).

¹³ Exec. Order No. 12591, 3 C.F.R. 220 (1987) *reprinted in* 15 U.S.C.A. § 3710 (note).

¹⁴ 103 Stat. 1674, Nov. 29, 1989; P.L. 101-189.

¹⁵ *Supra* note 12.

¹⁶ 5 U.S.C. § 552.

research, permitting federal laboratories to withhold such information from disclosure for a specified period.

Finally, the American Technology Preeminence Act of 1991¹⁷ made minor amendments to Stevenson-Wydler, e.g., extending it to legislative branch agencies and modifying required CRADA terms.

Looking Ahead

Congress is constantly tinkering with the laws governing technology transfer. In the last Congress, 80 bills were introduced that referenced or amended the Stevenson-Wydler Act, among 243 measures introduced that somehow affected technology transfer. What this tells us and should tell the public as well is that the use of federally-owned technology to promote economic competitiveness and growth is certainly very popular, both in Congress and with the Clinton Administration. Three pending bills are noteworthy.

- H.R. 820 was introduced by Rep. Tim Valentine (D-NC) on February 4, 1993 and was passed by the House of Representatives on May 19, 1993 (243-167 vote). Because the Senate has passed a similar measure and President Clinton has indicated his support, H.R. 820 is likely to be enacted soon. It contains the "National Competitiveness Act of 1993," "Manufacturing Technology and Extension Act of 1993" and "Civilian Technology Development Act of 1993." These proposals seek to boost the nation's international competitiveness by strengthening our technology base and fostering the development of advanced products, particularly in manufacturing.

H.R. 820 would (1) direct the NSF to set up new engineering centers dedicated to manufacturing R&D, (2) establish an Advanced Manufacturing Technology Development Program within Commerce to promote the development and application of advanced manufacturing technologies and processes, (3) expand Commerce's Advanced Technology Program to provide greater support for pre-commercial R&D of generic technologies, (4) strengthen the NIST's

¹⁷ 106 Stat. 7, Feb. 14, 1992; P.L. 102-245.

technology transfer program and (5) establish a program to coordinate the collection of information on foreign science and technology, “benchmark” foreign R&D capabilities against those in the U.S. and disseminate this information to U.S. industry. It would also would establish a National Technology Outreach Program to assist manufacturers and research centers in upgrading their technology base by facilitating the sharing of new technology and expertise through an interactive information and communications system.

- H.R. 1432, the “Department of Energy Laboratory Technology Act of 1993,” would establish missions for DOE R&D laboratories, provide for review of laboratory effectiveness in realizing such missions and reorganize and consolidate DOE technology transfer activities. According to its sponsor, Rep. George Brown (D-CA), the bill has four key objectives: providing an updated, focused set of missions for the laboratories; improving the organization of DOE’s research, development and technology transfer functions; enhancing collaboration between DOE laboratories and industry by streamlining the technology transfer process; and ensuring that activities of all federal and DOE laboratories are regularly evaluated and, so far as possible, coordinated. The DOE supports this bill, and it seems likely to be enacted in this Session of Congress.

- H.R. 523, the “Technology Transfer Improvements Act of 1993,” introduced by Rep. Constance A. Morella (R-MD) in January 1993, would amend Stevenson-Wydler to enhance technology transfer for works prepared under certain cooperative R&D agreements by allowing federal agencies to claim copyright in any computer software prepared in whole or in part by federal employees in the course of work under a CRADA. This would be the first time that copyright in a “work of the United States Government” was allowed under U.S. copyright law. Some industry groups oppose this bill.

Current Policies and Procedures of Federal Agencies

Technology transfer efforts for federal laboratories are, as described earlier, prescribed and detailed at some length by the Stevenson-Wydler Act. The Act requires an Office of Research and Technology Applications to be created at each GOCO and at each GOGO over a certain size.

All federal agencies are “taxed” to support the Federal Laboratory Consortium, an interagency group. It helps resolve technology transfer issues that get raised between government agencies, as well as the terms of CRADAs. Technology transfer activities themselves vary greatly from agency to agency, depending on missions and capabilities.

- National Science Foundation. The NSF is barred from operating any laboratory itself. Its mission is to promote research capability and education, not to further any particular area of technology. Thus, NSF has no in-house scientific research or technology transfer efforts.

- The Department of Agriculture. It has a long history of developing farm-related technology and disseminating it to farmers. The Agricultural Research Service and the Forest Service have entered into hundreds of CRADAs since the FTTA became law.

- The Department of Commerce. Commerce has Offices of Research and Technology Applications in all of its laboratories and has entered into CRADAs with private industry for research in several areas. Commerce’s NIST, regional Centers for the Transfer of Manufacturing Technology, and, of course, its Advanced Technology Program all participate.

- The Department of Energy. Each DOE laboratory has a Technology Transfer Office to actively promote inventions and ideas. DOE’s laboratories work overtime to avoid extinction as part of the “peace dividend,” since there are few if any private sector jobs for which “made atomic bombs” is a valuable resume item. The Cable News Network reported that DOE labs have entered into over 300 CRADAs. However, the research funding involved in those agreements amounted to only 3% of the laboratories’ budgets.

- The National Institutes of Health. The NIH Office of Technology Transfer promotes and licenses technology developed at all of its GOCO laboratories. The Public Health Service makes extensive use of the CRADA authority — but not without controversy. A recent Washington Post article on a DC-area biotechnology firm that was among the first to enter into a CRADA with NIH noted that such partnerships have been criticized because some believe that it is unfair for participating firms to gain a possible competitive advantage from government-funded research.¹⁸ The article also reported that CRADAs are not without private-sector headaches because participating firms have less influence than they might want over research direction and must accept complex rules governing conflicts of interest and proprietary control of knowledge gained from such research.

- The Department of State. Since it supports no scientific research, it has no technology to transfer; nevertheless, it actively encourages both scientific and technological cooperation between the U.S. and foreign agencies, universities and firms. Thus the State Department negotiates agreements, using both the carrot of technology transfer from federal agencies and laboratories and the well-publicized stick of trade sanctions.



¹⁸ *Genetic Therapy's New Hire Seeks Market for Biotech Products?* Washington Post, June 28, 1993, Washington Business section, at 11.