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# THE FEDERAL LABORATORY COOPERATIVE R&D PROGRAM
# LEGISLATIVE HISTORY or
# INTRODUCTION

There is broad agreement that with about $17 billion going to the Federal laboratories, which employ about one sixth of the nation's research workers, ways must be found to increase the flow of technology from these laboratories to the private sector.

The National Governors' Association has recently published a report entitled Technology and Growth, State Initiatives in Technological Innovation. This report says:

> "National laboratories and federal mission-oriented agency R&D facilities, which are located in many areas of the country, represent the very highest order scientific and technical capability. It is surprising, therefore, that their involvement in promoting closer research linkages with industry and the universities is so indirect...
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> "The fact remains that these national laboratories are far from having begun to realize their full potential as catalysts for close industry-university research cooperation or as collaborators in joint university/industry research."

Governor Dick Thornburgh of Pennsylvania, and Co-Chairman of the Subcommittee on International Competitiveness of the NGA Committee on International Trade and Foreign Relations, testified in favor of the Uniform Patent Procedures Act of 1983 (S. 2171). In this testimony, Governor Thornburgh said:

> "There are over 380 federal laboratories in the United States. The eight in Pennsylvania are performing research in areas ranging from coal and forestry to food quality. We should be certain that we are taking maximium advantage of their resources and results to stimulate economic growth in this country. Although these laboratories perform a significant amount of the research taking place in our nation today, they have not always been as aggressive as they might in transferring their technology from the laboratory to the private sector."

The Stevenson-Wydler Technology Innovation Act was a good beginning toward a solution to this problem. It required agencies to establish offices in each of the larger laboratories to evaluate new technologies and promote the transfer of those with commercial potential. But the Secretary of Commerce, in his February, 1984, report to the President and Congress on the operations under the Act stated:

"It appears to be no accident that technology complexes such as Silicon Valley, Route 128, Research Triangle, and Princeton's Forrestal Center have evolved around major universities. Direct access to the university and the university's right to transfer the results of its research on an exclusive basis is an important incentive for business to invest in the further development and commercialization of new technologies. In contrast, Federal laboratories generally have not served as nuclei for similar arrangements. They often perceive themselves as unable to enter into cooperative development arrangements because of organizational and legal restraints. This is one reason why national reviews of Federal laboratories have concluded that too little of the results of laborataory research is used in the private sector."

The problems, disincentives, and potential opportunilties facing the laboratories were also brought out in testimony on S. 2171. Dr. Jerome Hudis, Assistant Director of the Brookhaven National Laboratory provided several examples of why laboratories need decentralized authorities to manage and promote the results of their research. He stated that the Department of Energy has eased its rules on agreements with private sector organizations allowing them to own the results of research which they fund when it is to be performed in DOE labs. In the fourteen months since this change, Brookhaven has been able to participate in thirteen such agreements with a total private sector funding level of $2,068,177. But he then went on to explain how the requirement to go to DOE headquarters for approval of other types of industry collaborative arrangements and patent licensing agreements has effectively prevented them. He gave numerous examples of how lengthly headquarters approval delays have caused business firms to lose interest in developing important new technologies. His testimony can be summarized as a request for decentralized authority to determine which technologies have commercial potential and to enter into a range of relationships with industry to move the technologies to the market.

During testimony on S. 2171, several witnesses, including Governor Thornburgh, described how State and local government are promoting economic growth in high technology industries. Dr. John Toll, President of the University of Maryland, described how the University, Montgomery County, and the National Bureau of Standards are establishing the nation's first Biotechnology Research Park. He described the benefits that are anticipated from this leading example of cooperation between industry, local government, a major State university, and a Federal laboratory.

It is significant, that while the contributions of the Bureau of Standards are a key to this project, few other Federal laboratories have the authorities or policies which encourage them to enter into such arrangements. A goal of Congress is

to provide all Federal laboratories with the authorities and incentives necessary to work with the private sector in ways that support both the labs' missions and the national economy.

S. 1538 provides a major step toward this goal, by requiring the labs to identify and seek regular patents for inventions with commercial potential. Before the goal can be attained, however, several present obstacles and disincentives to laboratory/ industry cooperation must be removed.

The Federal Laboratory Cooperative R&D Program amendment to S. 2171 is intended to remove these obstacles and disincentives. It is based in large measure, on the successful experience of major research universities after they received the right to own and manage inventions they make with Federal funding. Often, an invention requires additional development before it can be used, and the Federal laboratory where the invention was originaly made may be the best place to do follow-on work. This amendment allows the heads of Federal agencies to authorize their Government-operated laboratories to undertake the type of joint research that may be necessary for effective follow-on work. The amendment authorizes a broad range of cooperative research and development arrangements where there is a mutual interest between the laboratory mission and other levels of government or private sector organizations. The amendment also allows the laboratories both to accept funds, services, and property under such arrangements. While a few laboratories do this today, many do not believe they have the necessary authorities.

The amendment authorizes laboratories to negotiate and assign or issue issue patent licenses on inventions the Government owns. In many cases, industrial firms may be first attracted to a laboratory by interest in an existing invention, and the labs need the authority to negotiate directly with firms that may desire to enter into cooperative arrangements to further develop the invention.

Notwithstanding the fact that these cooperative research and development arrangements must be consistent with the missions of the laboratories, the primary purpose of the agreements is to stimulate or support development and commercialization of technologies that originate in the labs. For this reason, most of the cooperative arrangements and patent assignments are expected to be forms of cooperative agreements as established by 41 U.S.C. 505.

Often, collaboration between a laboratory and some other organization can be expected to lead to future inventions. All parties should be clear on who will have what rights to future inventions when the work begins. This amendment allows Federal laboratories to assign rights in future inventions to the cooperating, outside parties. It is anticipated that agencies

will normally retain for the Government, a paid up license to use or have future inventions used in the Government's own behalf.

The amendment allows agencies to require outside parties to pay royalties for the right to use Government inventions, and provides for a direct payment of at least 15 percent of royalties received to its Federal employee inventor(s). The universities have found royalty sharing with their inventors to be a powerful incentive that increases the number inventions initially reported and encourages inventors to contribute to commercialization efforts. This provision is to accomplish the same ends in Federal laboratories.

Under the amendment, the laboratories would be allowed to keep, for their discretionary use, royalties they receive after making payments to inventors and other licensing costs. This is to serve as an incentive to laboratory managers who may otherwise view various proposals for outside colaboration as diversions from their laboratories' missions. The laboratory may keep all royalties (after payment of inventors and costs) up to five percent of its annual budget, and 25 percent of royalties in excess of athe five percenat limit. Im most cases, the opportunity to accept outside funding and assistance to perform mission related work will serve as a stronger incentive for cooperative projects than this royalty provision, but the provision is to ensure mutual rather than conflicting incentives between inventors and their managers.

Under S. 1538, agencies would file Statutory Invention Disclosures for inventions they determine to have no commercial potential. In some cases, however, the laboratory inventor may not agree with the determination. This amendment allows the invention to be given to the inventor for patenting and commercial exploitation. It is expected that when this is done, the Government will retain its normal rights to use the invention without paying royalties. A laboratory employee may voluntarily transfer the ownership of an invention he has made apart from his assigned duties to the laboratory for patenting and promotion.

The amendment is permissive, in that it authorizes but does not require agencies to extend these decentralized authorities to their laboratories. It is intended that these authorities be provided to a laboratory altogether and not be selectively authorized. It is the intent of Congress that agencies use this authority to decentralize to the greatest practical degree, though it is recognized that other arrangements may have to be made to serve the smaller laboratories so long as the decision making is reserved for the laboratories.

The Secretary of Commerce is to develop guidelines and a number of aids to help the agencies make best use of these authorities. These aids will include techniques for evaluating

the commercial potential of inventions, instruction courses for laboratory employees on the innovation process, model agreements covering the disposition of inventions for use in establishing cooperative arrangements, and advice and asistance to laboratory directors. The Secretary is also to monitor the results of the program and provide annual reports to the President and Congress.

Traditional conflict of interest regulations, which were designed to protect both Federal employees and the public interest, need to be revised to allow direct participation of laboratory employees in the commercialization of inventions in which they may have a personal interest. Personnel regulations must be developed that permit the effective use of the authorities contained in this Amendment. The Director of the Office of Personnel Management is to develop such new regulations in coordination with the Secretary of Commerce and the heads of agencies with Government operated laboratorties.

It is expected that these authoritities will open an entirely new form of benefit to State and local governments by allowing the Federal laboratories to become active partners and contributors of technologies to promote regional ecconomic development. Where desired, the contributions may be made through foundations or other organizations established to advance State or local economic activity.