more effectively met. The economic and social problems of the society have been shortchanged in our national research effort.

Fifth, in the few industries that have received the largest chunk of Federal R. & D. money, the biggest companies have got the lion's share. While the largest corporations generally tend to do most of the research (for very obvious reasons: they are the best able to do so from a financial standpoint) actually—and this is surprising to some—the Federal Government has tended to accentuate this pattern. In 1959, for instance, the four largest chemical producers were given 87 percent of the Federal research money spent in that industry, although together they did only 45 percent of the industry's privately financed research; and in 1959, 90 percent of all Federal research funds went to firms with 5,000 or more employees. (See table 4 for further details.) Small business gets even a slimmer share of research money than it does of Government prime contract awards—which means it gets practically nothing. In fiscal 1962 less than 3 percent of defense research awards went to small business.

TABLE 4.—*Percentage of total R. & D. performance funds and total federally financed research and development accounted for by the 4 and 8 companies with the largest dollar volume of R. & D. performance, by industry, 1959*

Industry	Percent of R. & D. performance		Percent of federally financed R. & D.	
	1st 4 companies	1st 8 companies	1st 4 companies	1st 8 companies
Food and kindred products	37	55	(1)	(1)
Textiles and apparel	58	70	(1)	100
Lumber, wood products, and furniture	42	65	(1)	(1)
Paper and allied products	44	58	(1)	(1)
Chemicals and allied products	45	56	86	91
Industrial chemicals	63	79	87	92
Drugs and medicines	45	67	79	94
Other chemicals	28	45	(1)	57
Petroleum refining and extraction	50	73	62	66
Rubber products	85	91	90	99
Stone, clay and glass products	51	70	45	71
Primary metals	44	58	47	73
Primary ferrous products	59	78	(1)	(1)
Nonferrous and other metal products	56	72	(1)	88
Fabricated metal products	48	65	62	89
Machinery	48	58	64	79
Electrical equipment and communication	63	77	64	81
Communication equipment and electronic components	60	77	63	80
Other electrical equipment	89	91	97	98
Motor vehicles and other transportation equipment	90	94	93	98
Aircraft and parts	50	71	51	71
Professional and scientific instruments	62	70	71	81
Scientific and mechanical measuring instruments	75	83	92	95
Optical, surgical, photographic and other instruments	64	73	63	81
Other manufacturing industries	60	60	57	66
Nonmanufacturing industries	33	40	69	73

[1] Not available.

Source: National Science Foundation (NSF 62-3). Funds for Research and Development in Industry, 1959, app. A, table A-11, p. 62.

Sixth, there is another sort of serious imbalance that should also be noted—and that concerns the uneven geographic distribution of research awards. A few sections of the country receive most of the Government's research funds, as is well documented in a special report issued in 1962 by the Department of Defense based on fiscal 1961

Within the Federal sector, two agencies, DOD and NASA, together account for nearly 80 percent of the Government's research effort. The 1964 budget projects research expenditures by the Defense Department of $7.7 billion (the Department is seeking new obligational authority of $8 billion, with most of this to be spent in future years) and by NASA of $4.2 billion (it is asking new authority to obligate $5.7 billion). Unquestionably, of these two agencies NASA is growing the fastest: In fiscal 1961, for instance, it spent only about $744 million for research, but in 1964 it will spend $4.2 billion—which means that within only 4 years its research operations have increased sixfold. In fiscal 1964 NASA expenditures will amount to more than a quarter of total Federal research outlays, as the following table shows:

TABLE 2.—*Federal research expenditures: Role of DOD and NASA*

[Dollar amounts in millions]

Fiscal year	Total Federal R. & D. expenditures	NASA expenditures	NASA percent of total	DOD expenditures	DOD percent of total
1961 actual	$9,291	$744	8	$3,582	71
1962 actual	10,348	1,257	12	6,781	65
1963 estimated	12,240	2,400	20	7,089	58
1964 estimated	14,933	4,200	28	7,653	51

Thus, the administration of NASA patent policies is of large and increasing public concern.

Several other characteristics of our Federal research programs, however, must be kept in mind in any enlightened appraisal of their aggregate effects. What they add up to is a case of extremely uneven distribution, threatening to bring about a substantial readjustment of our economic and social order. Let me briefly note a few of the chief features:

First, in its research undertakings the Government relies on authoritative decision and negotiation rather than the usual market process to determine the extent and manner of allocation. This is reflected in the fact that in fiscal 1962, 97 percent of DOD research awards were made on a nonprice, noncompetitive basis. Here, as in the case generally of defense procurement, we depart from the kind of automatic allocative mechanism that we otherwise depend on to fulfill our economic goals. This means that we must make ourselves aware of the character of our research operations, constantly appraise the probable effects, and make appropriate adjustments in policy. We cannot expect desirable results if in the research area we follow the dictates of laissez-faire.

Second, the great bulk of the Government's attention is concentrated on applied research and on development, with very little interest displayed in basic research. And since in private industry there is also no significant attention given to the acquisition of basic scientific knowledge (in 1961–62 only about 7 percent of industry research expenditures went for basic research, and only about 10 percent if all sources are included), this crucial facet of technological inquiry receives disturbingly little study.

To correct this imbalance the President outlined several new approaches worthy of careful legislative consideration. Among other things, he would establish regional centers for the dissemination of scientific information, modeled along the lines of the Agriculture Department's highly successful Extension Service. This is a highly laudable proposal, though it doesn't go nearly far enough, as later discussion here indicates. But even if the President's new programs for diffusing the tons of technical knowledge that are flowing from the Government's billion-dollar research assault were largely effective, these benefits, I suggest, would be far more than counteracted by the adverse results of NASA's plan to join in the Defense Department's patent giveaway. As I see it, the Defense Department and NASA are working at cross-purposes with the Chief Executive.

In my opinion two steps should promptly be taken to insure that our $15 billion a year in federally endowed research programs function in a manner fully consistent with the public interest:

(1) All agencies and departments of the Federal Government should be required to take title to the patents on all inventions which arise out of or are first reduced to practice in the course of Government-financed R. & D., unless the contractor can establish that he made the primary contribution to the patentable invention. To me this makes just plain good sense: the public should get what it pays for, and normally this will incorporate taking title to patents stemming from Government research. Indeed, most companies require their scientists to assign over the patent rights to any inventions which they make during their employment—a procedure which they reject when the Government is paying the bill. Based on the available evidence, a change to the title policy, though it would be greeted with strident shouts of protest from those who have a strong vested interest in perpetuation of the existing bonanza, would have few, if any, unfavorable effects. But it would stimulate use of new scientific discoveries, making them available more quickly and at lower cost than if the contractor is allowed to seize the exclusive right to supply the product in commercial markets. It should not be overlooked that a patent confers a monopoly—and generally this means that where development and exploitation of the pertinent invention occurs it is likely to be slower, more limited, and result in higher prices than would prevail if development were to occur under less restricted (nonmonopolistic) circumstances.

(2) To exploit the vast hordes of technical information which our gargantuan R. & D. effort is generating, a new independent Government agency should be created—an Inventions Development Authority—to have as its major functions the collection of scientific information, its analysis, and its development, including the collection of royalties on Government-owned patents where appropriate. Without such an agency the locus of the title to patents will only have met one aspect of the overall problem. All too often now the question is simply whether a patent collects dust in the file drawers of the contractor or the pertinent Government agency (one recent study found that only about 13 percent of privately owned patents stemming from federally financed R. & D. had ever been licensed for use). To use this information for the good of the public demands the creation of an agency which is charged specifically with the task of exploiting patented ideas fathered by Government research.

20-206—63——2

ECONOMIC AND LEGAL PROBLEMS OF GOVERNMENT PATENT POLICIES

Prepared by Prof. Richard J. Barber

Each year the Federal Government now spends more for research and development (R. & D.) than it did in all the years from the time of the Revolution through the end of World War II. Indeed we now spend more for this purpose in a single day—a daily average of $35 million in fiscal 1963, $41 million in fiscal 1964—than we did in any one year before the World War II military buildup commenced.

But never, I submit, has so much money been spent by the Government with so little consideration for its ultimate social and economic consequences. We have launched a truly massive research effort that literally has grown like Topsy. In the fiscal year 1964 it will consume $15 billion. We have taken long strides in our $20 billion effort to reach the moon and we have recorded many distinct scientific accomplishments. Yet our institutional arrangements for processing and exploiting the resulting flows of technical information are still of 19th century vintage. Billions of dollars go for research but mere fractions of mills for putting the product of this large scale inquiry to the good of the society at large.

Most of the scientific knowledge being generated through the Government's research effort is being locked up in the hands of the few—benefiting almost exclusively the giant corporations that receive the bulk of the funds and the relatively limited geographic areas in which they have their principal facilities. Other companies—usually the smaller ones—and other industries which might put this new knowledge to good use, perhaps in unforeseeable as well as entirely expected ways, are effectively denied the requisite information. Even worse, many of the discoveries that are being made each day—the major as well as the minor—are not being exploited by anyone, including their corporate and governmental parents. Through sheer lack of attention we have permitted key Government departments to adopt patent policies that permit corporate recipients to seize control of inventions that have been made with public funds. And we have failed to set up an effective institutional arrangement that could efficiently diffuse the product of the Government's $15 billion a year research effort throughout the society—to all companies, in all industries, wherever located.

The Department of Defense (DOD) and the National Aeronautics and Space Administration (NASA) have kept their large eyes fixed firmly on what really are short-run, albeit important, targets connected with national security and the exploitation of outer space. But their gaze—and they account for about 80 percent of Federal R. & D. expenditures—has been exceedingly myopic: in their all-out efforts they have manifested little regard for the total implications of

FOREWORD

The following study prepared by Richard J. Barber, assistant professor of law at Southern Methodist University, deals with some of the economic, political, and legal implications of the patent policies of the Federal Government.

Before World War II, research and development expenditures were small, and originated chiefly in the private sector of the economy. Although the Federal Government sponsored and conducted research, its contribution, which was not very significant, was confined to laboratories in the Departments of Agriculture, War, and Navy.

The Federal Government obligated about $14.5 billion on research and development for 1963, which will constitute from 65 to 70 percent of all funds spent in the Nation on these activities. In addition, the trend toward a higher Government ratio is expected to continue.

During the thirties, most of the Government's research was performed in its own laboratories; today over 30 percent of Government research is performed by private laboratories. During the past two decades, then, funding by the private sector has been increasingly displaced by the public sector, while performance with public funds has shifted from the public sector to the private sector.

A large proportion of these funds are being used to create and support firms and industries, which thus owe their very existence and survival to the Government. In 1960 Government research funds accounted for 89 percent of the research and development in the aircraft and missiles industry, 67 percent in the electrical and communications industry, 51 percent in the scientific instruments industry, and significant percentages in machinery, rubber products, and other industries. Considerable know-how and technical backgrounds have been acquired at public expense. It is not surprising that a high degree of correlation exists between those industries heavily dependent upon Government research and the amount of scientific personnel employed in the industries. This is in conflict with our view that industries will risk venture capital, and, if successful, move ahead in a competitive marketplace.

Having been created and sustained by the Government, many pseudoprivate firms, without taking the risks of truly private enterprise, want to be considered as genuine components of the free, competitive enterprise system, and they invoke the philosophy of the patent system to justify their objectives of securing for themselves the future control of the new science and technology. Nothing less than the future of our free, competitive enterprise system is at stake.

RUSSELL B. LONG,
Chairman, Subcommittee on Monopoly, Select Committee on Small Business, U.S. Senate.

88th Congress
1st Session

COMMITTEE PRINT

ECONOMIC AND LEGAL PROBLEMS OF GOVERNMENT PATENT POLICIES

REPORT

PREPARED FOR THE

SUBCOMMITTEE ON MONOPOLY

OF THE

SELECT COMMITTEE ON SMALL BUSINESS

UNITED STATES SENATE

JUNE 15, 1963

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patent which stops the taxpayer himself from using his own resources. Such a situation should not be permitted to occur. It may have been an oversight in the particular contract you mention.

Senator LONG. How can public policy permit any such private patent? Now, Admiral Rickover, your achievements in developing the atomic submarine are rather well known. Have you found that the inability to accord private patent rights to individual contractors has impeded the development of the atomic submarine?

Admiral RICKOVER. Categorically, I say "No." It is the same as the case of the psychiatrists in submarines. Having never heard about this situation, I didn't know there was a problem.

Senator LONG. Where you have a large number of contractors working on parallel projects, would you personally feel that progress would be impeded if each one had the right to take out patent rights and have property rights in the secrets they developed?

Admiral RICKOVER. Yes, sir; I believe there would be. With the system in use in the Atomic Energy Commission all of this information is shared.

Senator LONG. And you have no difficulty in persuading anyone to share what he develops as fast as he finds it?

Admiral RICKOVER. I didn't know until this morning there was any difficulty.

Senator LONG. Do you have any knowledge of problems that exist in any other field outside of your own, where private contractors do not have the right to keep patents?

Admiral RICKOVER. I have heard there are cases in other fields, but to the best of my knowledge, when one attempts to substantiate these cases, they seem to evaporate. In fact, our problem in the atomic energy field is we have too many contractors who want to do work under our patent conditions, and not the other way around.

Senator LONG. So, as far as you are concerned, you have no knowledge of any difficulty in persuading contractors to do the work for you.

Admiral RICKOVER. No, sir. I have difficulty keeping contractors away who are trying to persuade me to give them more work.

Senator LONG. Do you have any questions, Ben?

Mr. GORDON. Senator, I have a question, but I think that you covered it already. But this, perhaps, looks at it in a more general way and I wonder if I could ask it. We have received complaints that the policy of giving away patent monopolies to contractors has a tendency of hampering the dissemination of new scientific and technical knowledge, at least until it can be patented or exploited. What do you think of this? Does the AEC policy prevent this kind of a situation?

Admiral RICKOVER. There is a definite possibility that such a policy can hamper dissemination of scientific and engineering information. The present AEC and NASA policies tend to encourage rapid dissemination of information. This is of great help in developing a new technology. Mind you, we are talking about new technology which it is incumbent on us to develop as rapidly as possible from a national standpoint. We are not discussing the patent situation per se. You and I are not now talking about doing away with our patent system. We are merely discussing whether the Government owns the patents it has paid for. We are only talking about a particular aspect of the patent problem.

standpoint of whether they are aiding or impeding our national progress. Today, there is no essential difference between military and civilian technology. So anything that holds up one, also hurts the other. As I said previously, the patent problem that faces us today was not envisioned by the founders. They lived in a preindustrial society—a society where a patent resulted from the efforts of an individual, not of a large organization.

Senator LONG. Do you have any idea or any judgment as to what you believe the people at the working level, the actual scientists and engineers, who are doing the technical and developing work, think about this matter and this issue?

Admiral RICKOVER. The men working on a Government project surely know it is the Government that is actually paying their salary. I have never found a lack of desire to do good work, just because it was being done in a Government laboratory instead of a private laboratory, or because the work was being paid for by the Government. When a company hires a man, they pay him for all his talents, including his ability to invent.

Mind you, sir, we must stick to the point; we are not now discussing our patent system; we are only discussing whether the Government should retain rights to patents for which it pays. To the individual scientist or engineer who makes the invention or contributes to it, there is no financial difference anyway. The company gets the patent rights; not he. If he is a good man, if he makes an invention or otherwise makes himself of greater value, he will be promoted and his pay increased whether the company is paying his salary directly, or the Government indirectly.

Senator LONG. As I understand your position, from your last statement, if the Government hired a contractor to develop something for the Government, the contractor, scientists, and engineers are actually working for the Government, notwithstanding the fact that the contractor is interposed between them and their Government.

Admiral RICKOVER. Yes, sir. As far as they are concerned, they do the same in either case, and get the same treatment.

Senator LONG. In other words, if I were a scientist working either for the AEC or a contractor of the AEC, I would be smart enough to know that I am actually working to develop atomic energy for the U.S. Government.

Admiral RICKOVER. Yes, sir. There is an analogy between this situation and the one that obtains in education—one of my favorite subjects, as you know. The National Education Association, a self-admitted lobbying organization, assumes to speak for the teachers. The NEA is constantly saying what they suppose the teachers to be thinking. The teachers rarely speak for themselves. However, I receive many letters from teachers who say: "Please don't quote me; I thoroughly disagree with the NEA, but I am afraid to talk." In the case of patents, everybody is talking for the scientists and engineers except they themselves. The patent lawyers are always telling us what the scientists and engineers think. Now, I happen to deal directly with many scientists and engineers; I have not heard them express the thoughts on patents as espoused by the patent lawyers.

Senator LONG. Would you care to elaborate further on what you do detect the attitude of scientists and engineers to be?

go to a medical society meeting and explain their new procedure so that other doctors might find it advantageous for humanity?

Admiral RICKOVER. Yes, sir. As I said, the medical profession is the most noble and ethical profession. Nearly every doctor is dedicated to improving the health and happiness of all humanity. I believe we could well adopt that same principle in many other fields. We would do well to have our scientists, our engineers, our industrial leaders, our Government servants, and our educationists emulate our doctors.

Furthermore, you must bear in mind we are not talking about the ability of industry to obtain patents when they use their own money. Even in the atomic energy field or in the space field, if you spend your own money you take title to the patent, except for weapons. Last year more than half the patent applications in the atomic energy field were filed by private industry. We should urge industry to spend more of their own money for research and development—in which case the patents will belong to them and they will build up a position of their own.

It may interest you to know that 90 percent of patents for peaceful applications in the atomic energy field are developed by 10 to 11 of the AEC contractors. There have been only three cases where contractors have objected to the AEC patent provisions. These objections were based on the fact that the language of the contract was too all-inclusive; that the language took in more than was required for the actual performance of the contract. These three cases were not important ones. The AEC, I understand, intends to recommend changing the language.

No one has suggested in any instance I know of that industry can't have patents. We must sharpen the problem and point out that the real issue is whether patents, the development of which is paid for by the Government, belong to the people or belong to industry. That is the real issue. We are not discussing the patent system per se.

Furthermore, there is here involved a matter of broad national policy. At present, instead of Congress examining the patent situation, we are permitting each agency to decide for itself. I do not believe Congress should abdicate its constitutional rights and duties and permit any individual agency in the executive branch to set up its own rules which by perpetuation over a period of many years finally assume the force of law and then are used as precedents. The tendency of Government agencies is to let things continue as they are. It is easier for them this way; they don't have to think or to hurt anyone's feelings. It is also easier to have a simple rule such as the Department of Defense has, rather than to judge items on a case basis. I believe the application of our patent law should be considered as a general policy matter for the entire Federal Government; and that Congress should not permit each agency to set up its own rules. That, in effect, is like having several different Federal laws to cover the same subject.

I believe it is in accordance with the intent of the patent law that the Government should own patents resulting from work it has financed. In other words, the Atomic Energy Commission and the National Aeronautics and Space Administration patent rules are in consonance with the law, and not otherwise, as some would suggest.

trained and schooled at Government expense. These are very valuable assets, and the reason so many large corporations vie to obtain these research and development contracts. Now, I can only consider this problem in the light of my own experience. I have never had a single case where the patent provision of the Atomic Energy Act influenced a company not to undertake Government R. & D. work. In fact, many of the very same companies who operate under the Department of Defense patent provisions, which are far more liberal to them than the AEC rules, not only accept research and development work under the Atomic Energy Commission patent rules, but even urge us to give them more such work.

Senator LONG. Do you have any indication that the companies charge you more to do research and development if they are not permitted to keep proprietary or commercial patent rights?

Admiral RICKOVER. No, sir; I know of no such cases. They are nearly all cost-plus type contracts and the fees are about the same throughout the Government. Nor do I agree with the statement frequently made that unless there is such a patent provision, their employees will not work assiduously. I have never seen anything of the sort. A man who has an idea in his mind, if he is worth his salt, will want to get it out. He will fight all obstacles to get it out; it really makes no difference to the scientist or engineer one way or another because the company gets to own the patent rights anyway.

Now, the companies apparently take a different stand toward the Government than they do to their own employees. Their own employees must sign an agreement providing that the company takes title to the patents they develop. Apparently, the companies desire better treatment from the U.S. Government than they accord their own employees.

Senator LONG. I was talking to a young man who worked for an oil company about its research program. He told me that when he went to work for the company, he was required to sign a contract that said that anything he developed would be turned over to the company. Now, he said that he didn't have to sign that contract, but he felt that if he was going to take the job, the company had every right to ask him to sign it. And yet his attitude was that if the company, in turn, was going to work for the U.S. Government on a project to be wholly paid for by the Government, it was no more immoral for the company to be asked to let the Government keep the patent rights than it was for him to be asked to let the company keep the patent rights if he went to work for that oil company.

Admiral RICKOVER. That is tantamount to what I said. I agree with you that companies in the employ of the Government should receive the same treatment from the Government as they give to their own employees. In Great Britain, as you know, there is a different system. There, the patent rights for work financed by the Government belong entirely to the Government; the Government licenses industry and even shares in the royalties industry receives from non-Government applications. In Russia, the Government, of course, owns all patents. So here we have three different patent systems working side by side. I know of no evidence indicating that the British or the Russians are being held back because they have not copied our patent system. One of the reasons the Russians have been able to make rapid progress is because they disseminate technical

tools it has, how it uses these tools, and so on. Where the facilities are owned by the company itself, and where the know-how is its own, the Government shouldn't publish that information. When these conditions obtain, it is possible we have gone too far in making the information public.

Up to the advent of the Atomic Energy Commission in 1946 and the Space Agency in 1958 most research and development consisted essentially of adaptations to existing technology. That is, an industrial organization would be called upon by the Government to take an item it had already developed over a period of many years and change it to a new or improved item for military application. On that basis there was considerable justification for the entrepreneur to maintain his background patent rights; he was merely adding a small novelty to an already existing item. But with the coming of atomic and space science, we have an entirely different situation; we are now dealing with equipment that has never before been used. In fact, most of it was never even conceived of. Consequently, nearly all the money for developing the complete item comes from the Government. I believe in the atomic energy field about 92 percent of the money being spent on research and development is supplied by the Government. It is for this reason I consider the existing patent provisions in the Atomic Energy Act and in the Space Agency Act fair and valid.

Where the Government bears all or nearly all of the cost, where the facilities belong to the Government, and where the Government bears all the risk, the people should own the patents. The American people are spending their money for the research and development; therefore, the patents should belong to them.

Senator LONG. Would that 92 percent be a conservative figure?

Admiral RICKOVER. It probably is. We are dealing with projects and with items that are novel, that have never before been developed. Furthermore, in nearly all cases the patents are being developed in facilities wholly or almost wholly owned by the Government; this is another compelling reason for rights to these patents to inhere in the U.S. Government.

Senator LONG. Admiral, I would like to read to you an excerpt from a speech delivered by a patent attorney:

> * * * may I remind you in the words of our Founding Fathers in the Declaration of Independence that I consider these truths to be self evident: the American patent system is as old as our country, it is the best in the world, it is a fundamental part of our free competitive economy, it has contributed to the highest standard of living in the world, it has helped make America the strongest nation on earth, it will be as vital to our way of life in the age of space as it has been during our first 185 years as a nation, and any proposal which departs from the basic fundamentals of our patent system, no matter how gilded, must be stamped out as a thistle in a wheatfield.

What do you think of this statement?

Admiral RICKOVER. It's a good, ringing Fourth of July speech, Senator Long. It reminds me of an incident that occurred in one of the German States about 150 years ago. As part of a thoroughgoing reform of the judicial system, it was proposed to abolish torture as a means of obtaining confessions from persons accused of crime. A

FOREWORD

For almost 2 years the Subcommittee on Monopoly of the Senate Committee on Small Business has been studying the patent policies of the departments and agencies of the Federal Government and the effect of these policies on our Nation's scientific and economic progress and on the competitive, free enterprise system. Our study culminated in 3 full days of hearings on December 8, 9, and 10, 1959.

Our efforts have revealed that the present patent policies of many of our Government departments and agencies, especially the Department of Defense, have the following effects:

1. The policy of giving away to private firms the patent rights to Government-financed inventions and discoveries tends to erect walls between scientists and to prevent a free interchange of information.

This tends to retard our scientific advance and undermines the very security of our country. The reason rests on the fundamental fact that the diffusion of scientific knowledge throughout our society is a prerequisite for scientific and economic progress and a rise in general productivity.

2. With the present distribution of research facilities in industries, the granting of exclusive commercial rights to private firms doing Government-financed research is giving a major advantage to the larger firms, thus accelerating the pace of economic concentration.

One of the chief arguments advanced for the policy of giving away patent monopolies on publicly financed inventions and discoveries is that if exclusive commercial rights are not given to the contractor, firms would be reluctant to take contracts, scientists would have no incentives to invent and the cost of the contracts to the Government would increase.

To seek further testimony on the validity of these arguments, Adm. Hyman G. Rickover was invited to describe his contract experiences with the Defense and Navy Departments, both of which allow the contractors to retain patent rights, and with the Atomic Energy Commission, which is required by law to take title to all inventions resulting from Government-financed research.

It would not be an overstatement to say that Admiral Rickover, because of his unique and wide experience, has quietly and effectively laid these arguments to rest.

RUSSELL B. LONG,
Chairman, Monopoly Subcommittee,
Select Committee on Small Business, U.S. Senate.

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PATENT POLICIES OF GOVERNMENT DEPARTMENTS AND AGENCIES—1960

CONFERENCE

ON

FEDERAL PATENT POLICIES

Senator RUSSELL B. LONG, Chairman,

SUBCOMMITTEE ON MONOPOLY

OF THE

SELECT COMMITTEE ON SMALL BUSINESS

UNITED STATES SENATE

AND

Vice Admiral H. G. RICKOVER

UNITED STATES NAVY

HELD ON

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about the specific language of these two bills. Generally, we prefer the language of section 113 of H.R. 11,856 over that of section 10 of H.R. 11,857. The two provisions are quite similar, with the exception of the reference to the general government-wide patent policy, but there are some language differences we would like to highlight.

Section 113(a)(1), for example, defines the word "information" specifically to include patented or unpatented technological information; it is thus more precise than section 10. Section 113(a)(1) requires dissemination of such information at the earliest "possible" date, rather than the earliest "practicable" date as in section 10.

Second, although we support the intent of subsection (a)(3) of both bills concerning background patents and know-how, we do feel it important that contractors who have invested heavily in given background technology and know-how should not unreasonably be deprived of a fair profit based thereon. If federal taxpayers finance a fundamental advance in energy technology, the general public should not be deprived of access to that advance because of the existence of blocking background technology. Any technological advance of necessity builds upon background technology. On the other

the principles of equity, it appears that the public interest would not be served by such relief. It is true that the right to seek an injunction is not inherent in the American patent system; it was not until 1819 that Congress first provided injunctive relief for patent infringement. 20/ It is further true that over the years the federal courts have developed the principle that injunctive relief under the patent code will not be granted when the injunction would interfere with the health, safety, or welfare of the public. 21/

20/ Act of February 15, 1819, 3 Stat. 481. Cf. Livingston v. Van Ingen, Fed. Cas. No. 8,420 (C.C.D.N.Y. 1811).

21/ Thus, when a patentee sought to enjoin the operation of a municipal sewage treatment plant, monetary relief was approved, but injunctive relief was denied. City of Milwaukee v. Activated Sludge, Inc., 69 F.2d 577 (7th Cir. 1934). The courts have also similarly considered patents for: the irradiation of oleomargarine with ultra-violet light to produce Vitamin D to prevent the disease of rickets (Vitamin Technologists, Inc. v. Wisconsin Alumni Research Foundation, 146 F.2d 941 (9th Cir. 1944)); railroad car hand brakes (Nerney v. New York, N.H. & H.R.R. Co., 83 F.2d 409 (2d Cir. 1936)); firehose couplers (Bliss v. Brooklyn, (Fed. Cas. No. 1544 (C.C.E.D.N.Y. 1871)); and street lamps (Southwestern Brush Electric Light & Power Co. v. Louisiana Electric Light Co., 45 F. 893 (E.D. La. 1891)) -- as falling into the categories of public health, safety, and welfare, thus warranting denial of injunctive relief for patent infringement.

Existing law already attempts to modify the natural incentive of some patentees to limit production in other areas involving patented technology. 18/ Of particular relevance here is section 1498 of the Judicial Code (28 U.S.C. § 1498), which provides, in effect, for a mandatory license whenever a patented invention is used or manufactured by the United States, or used or manufactured for the United States by a contractor. In other words, under existing law there is automatically a mandatory license running to the government, and to its contractors. Under this provision, the government (or its contractors) may not be enjoined from freely using patented technology in private hands if it pays a reasonable royalty or other fair compensation to the private patentee.

This statute was initially enacted in 1910 to permit the government to carry on work related to the public welfare, including of course the national defense and security. Section 1498 is not limited to any specified purpose; it is instead

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18/ E.g., 16 U.S.C. § 831r; 22 U.S.C. § 2356(a); 28 U.S.C. § 1498; 30 U.S.C. § 666; 42 U.S.C. § 1953 (f); 42 U.S.C. § 2183; 50 U.S.C. § 100(b); 50 U.S.C. § 167a(a)(3); 50 U.S.C. § 2473(b)(3).

recommended, in our December letter to the Senate concerning the counterpart bill, adoption of the mandatory licensing provisions expressed in H.R. 11,856. 15/

To summarize the position we have already expressed, we do not believe that adoption of this mandatory licensing provision will have serious adverse effect upon the patent incentive for research, at least none that will exceed that which is necessary to protect the public interest and to achieve the purposes of these proposed energy bills. The Environmental Protection Agency has stated that it found "no cutback in air pollution control research" as a result of section 308. 16/ Most major industrial countries in the world, other chan the United States, have general provisions requiring mandatory patent licensing, yet foreign technology (and foreign ownership of United States patents) is growing rapidly.

We also do not believe it will be necessary very often to invoke the provisions of subsection (c). Developers of

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15/ Letter of December 10, 1973, to Senator Henry M. Jackson, Chairman, Senate Committee on Interior and Insular Affairs.

16/ Letter of June 4, 1971, to Senator John Mc Clellan, Chairman, Senate Subcommittee on Patents, Trademarks, and Copyrights.

Fortune states:

> "Large scale R. & D., collectively supported by the industrial nations, seems called for. The more the consuming countries develop additional sources of energy, the more will all types of energy be subject to market forces and competitive pricing rather than political forces and cartel pricing. As that thought sinks in, the Arab governments are likely to become more reasonable in their demands."

But as we strive for full and freely competitive world energy markets, we must not sacrifice those same principles at home.

II. MANDATORY LICENSING OF PRIVATELY-OWNED PATENTS

Both H.R. 11,856 and H.R. 11,857 contain provisions providing for the mandatory licensing of patents, subsection (c) of sections 113 and 10, respectively. The possible patents involved are those "reasonably necessary to the development or demonstration of an energy system or technology pursuant to this Act." If, to implement the Act, the government official indicated 12/ determines that a patent should be subject to mandatory patent licensing, he is to certify the

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12/ H.R. 11,856 provides that the "Chairman" shall make the determination. H.R. 11,857 provides that the "Attorney General" shall make the determination, "upon application of the Council." As the "Chairman's" determinations will be argued by the Department of Justice before the United States district court, both officials will be involved under either H.R. 11,856 or H.R. 11,857.

immune to competition than it now is. 11/ Not only was the monopoly grant wasted, because the technology went unused, but its gift had the negative effect of raising barriers to competition.

Although the Harbridge House study tentatively indicates that general government-wide patent policy should perhaps be changed to rely more on a title approach, I should note that in the specific context of these two energy bills, that government-wide policy statement itself suggests a title policy is the correct one to follow. It identifies, in part, the following situations where the government should normally take title -- (1) research to develop technology for general commercial use by the general public; (2) research directly concerned with public health, safety, or welfare; and (3) research of which the government is the principal developer. The first two grounds are particularly apposite to energy research of the kind envisioned by H.R. 11,856 and H.R. 11,857, and the third to the proposed development of unconventional or highly speculative energy sources.

11/ In the Department's Separate Statement, supra, we suggested appropriate language to amend the government-wide policy statement.

policy statement renders it susceptible to a wide variety of interpretations; the statement has in fact been implemented in different ways be different federal agencies. As a result, incorporation of its broad and general terms -- with all the various qualifications and caveats -- may well leave indefinite any concrete policy direction in this area.

Third, as I have also pointed out, the Department of Justice does consider the present government-wide policy statement as still somewhat tentative and experimental. The reason for this is that the evidence so far tentatively indicates that a stricter title policy -- implemented on a government-wide basis -- may well be appropriate.

The evidence on which the Department of Justice bases its conclusions is the so-called Harbridge House study. 9/ This Department's conclusion, as stated in a November 1968 report on this Harbridge House study, is that --

> The study clearly shows that the existing Policy's criteria for advance grant of patent rights to contractors, at the time of contracting, is broader than necessary or appropriate in order to accomplish the desired ends of (a) obtaining participation of firms in government work, and (b) fostering commercial utilization of government-financed inventions. 10/

9/ Harbridge House, Inc., "Government Patent Policy Study -- Final Report," May 17, 1968.

10/ Separate Statement of the Department of Justice on Government Patent Policy, November 1968, submitted to the Federal Council on Science and Technology, November 21, 1968, p. 1.

of government research contracts also grows. Even a company with a firmly established commercial position in a particular technology must think twice before refusing to bid for a government research contract, since the likely consequences of such a decision may well be to create new competitors or to strengthen old ones.

It has been proposed, however, as in section 10(a)(1) of H.R. 11,857, that instead of following previous Congressional practice of identifying those areas where Congress deems it appropriate to require a title policy, Congress should simply incorporate by reference in these energy bills the government-wide policy statement, and part, but not all, of the regulations proposed to implement it. 8/ The Department of Justice believes it would be best to reject incorporation by reference of this general policy statement into section 10(a)(1), and recommends instead that Congress adopt a title-oriented approach in the context of the unique and pressing public purposes of this specific legislation.

8/ Omitted are the regulations relating to the licensing of government-owned inventions, 38 F.R. 3328 (February 5, 1973), which became effective May 7, 1973. The regulations that would be incorporated by reference, 38 F.R. 23782 (September 4, 1973), are not yet final and are subject to further correction and change

extraction of oil from shale -- all without fear of competition from newcomers. If the government retains title, however, section 113(a)(2) of H.R. 11,856 provides for dissemination of the patents by non-exclusive, non-discriminatory license to all qualified applicants.

Second, there is a real question whether there is any worthwhile purpose served by giving a contractor a right to exclude competitors from patentable inventions that arise out of government-financed research. Rather, such patents seem to be in the nature of a windfall gift to the contractor. The government purchases the contractor's research and development effort, often on a cost-plus basis. The contractor does not lower his contract price because of a government agreement to grant him patent rights. At the time of contracting, of course, the value of such rights in unidentified and as yet unmade inventions is too speculative to measure.

There is a further reason to view rejection of the title policy as providing something of a windfall to the contractor. The expenditure of public funds for R & D is in effect a government underwriting of the risk of the research effort. In the case of privately funded research, the patent system supplies an incentive to undertake these risks because it offers the reward of a limited right to exclude competitors

also agreed to the policy, once again because we felt that further operating experience, government-wide, under the policy statement was desirable. 4/

B. Position of the Department of Justice

As I will now explain, the Department of Justice supports the "title" policy adopted by section 113(a) of H.R. 11,856. We have already expressed in some detail our agreement with the Senate counterpart to this provision, in a letter of December 10, 1973 to Senator Jackson.

In the past, when commenting on proposed legislation, the Department of Justice has generally taken the position that title to government-financed patents should normally go to the government. This was the Department's position in the Attorney General's 1947 Report on Investigation of Government Patent Policy, 5/ his 1956 Report Under the Defense Production Act, 6/ and in numerous appearances before House and

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4/ Separate Statement of the Department of Justice on Government Patent Policy, November 1968, submitted to the Federal Council on Science and Technology, November 21, 1968.

5/ "As a basic policy, all contracts for research and development work financed with Federal funds should contain a stipulation providing that the Government shall be entitled to all rights to inventions produced in the performance of the contract." Ibid; p. 5

6/ "The present policy usually followed by Government agencies permits a company performing contract research to retain full ownership of any patents issued, granting to the Government only a limited, nonexclusive right to use the inventions. Assuming that the limited statistical evidence at our disposal correctly indicates the tendencies of the present program, that present policy may well be one of the major factors tending to concentrate economic power." Ibid; p. 24.

is involved in the grant -- the identity of the invention, or its value.

A. Historical Background

To the extent Congress has acted in this area, it has generally followed a title-oriented policy, providing for waiver of title by the government in some cases after an evaluation of considerations such as the field of technology involved, its intended use, and its importance to public health, welfare, and safety. Congress has provided, in a number of specific circumstances, that whenever the government finances the research work, it is entitled to any patent arising from such research. 1/ In a more limited number of particular circumstances, Congress has provided that the government is entitled to a license of its contractors' background patents as well, to the extent that such patents are needed for utilization of the first patent. 2/ There is, however, and I stress this, no general legislation requiring a title policy -- or any other policy -- with respect to government-funded research activity.

Absent such general legislation, the Executive Branch

1/ E.g., 7 U.S.C. § 427(a); 15 U.S.C. § 1396(c); 22 U.S.C. § 2572; 30 U.S.C. § 666; 30 U.S.C. § 951 (c); 40 App. U.S.C. § 302(e); 42 U.S.C. § 3253(c); 42 U.S.C. § 2182; 42 U.S.C. § 1954(b); 42 U.S.C. § 2457(a)&(f); 42 U.S.C. § 1961c-3; 50 U.S.C. § 167(b). Adoption of section 10 of H.R. 11,857 might have the effect of overriding some of these provisions, because H.R. 11,857 appears to affect or augment existing programs already subject to a title policy Compare § 4(b)(2)(A) of H.R. 11,857 with 30 U.S.C. § 666.

2/ E.g., 7 U.S.C. § 427i(a); 30 U.S.C. § 666; 30 U.S.C. §951(c).

On behalf of the Department of Justice, I appreciate the opportunity to testify today on the patent provisions of H.R. 11,856 and H.R. 11,857, sections 113 and 10, respectively. In testifying on these provisions, we express the views of this Department only. Moreover, we have not otherwise considered, nor are we prepared to comment on, most of the other substantive measures in these bills.

The patent provisions of these bills raise two fundamental issues -- first, disposition of government-financed inventions, and second, the mandatory licensing of patents. These two issues, however, arise here in a specific context -- that of proposals to spend massive sums of research and development money quickly and aggressively to aid all Americans to meet a "critical shortage of environmentally acceptable forms of energy." H.R. 11,856 contemplates, in part, spending some $20 billion over ten years, through both direct federal contracting, and the creation of "joint Federal-industry corporations" to demonstrate or operate particular forms of unconventional energy technology. H.R. 11,857 contemplates, in part, spending approximately $1.6 billion over two years on nonnuclear energy research, including research on novel and not yet developed energy sources. This bill also envisages the creation of joint Federal-industry corporations to demonstrate unconventional energy technology.

§ 11. Unauthorized Use of Background Patents

If a licensee brings a patented Technological Advance to the point of practical application and continues itself to work it under any license granted pursuant to this Act, then working such patented Technological Advance, to the extent it involves use of any Background Patent, shall constitute use or manufacture by or for the United States within the meaning of 28 U.S.C. § 1498; provided, however, that the licensee shall reimburse the United States for the direct reasonable costs of any litigation had thereby pursuant to 28 U.S.C. § 1498, and for costs and any final judgement or decree that may be rendered against the United States in any suit thereunder.

§ 9. Revocation

(a) Any license granted pursuant to this Act may be modified or revoked by a Government Agency, subject to subsection (b) of this section, if the licensee (1) makes a false statement or material omission in the license application or any report required by the license, (2) defaults in making such a report, or (3) commits a breach of any covenant or agreement contained in the license, or (4) if the patent is deemed uneforceable by the Attorney General.

(b) Before modifying or revoking any license granted pursunat to this Act, the Government Agency shall furnish the licensee and any further licensee or assignee of record a written notice of intention to modify or revoke the license, and any person so notified shall be allowed thirty days after such notice to remedy any breach of any covenant or agreement or to show cause why the license should not be modified or revoked.

(3) An agreement by the licensee that it shall furnish to the Attorney General such further information relating to the grant of the license as the Attorney General may request, and in such manner and form as he may specify (whether or not the Attorney General decides to participate in any hearing had pursuant to paragraph (2) of this subsection); and

(4) the reservation of a right in the Government Agency, in its discretion, to grant a nonexclusive, nondiscriminatory, unrestricted and reasonable license to all qualified applicants therefor --

(A) when government regulations require use of the patented Technological Advance; or

(B) as may be necessary or appropriate to fulfill the needs of public health, public safety, public welfare, or public environment; or

(C) for other public purposes stipulated in the license, or

(D) where the public interest would otherwise suffer unless such license were granted.

(2) The Government Agency may grant a Prospective Exclusive License to the Contractor for any Shared Foreground Patent pursuant to section 4 of this Act, and, upon the grant to the Contractor of a license on a limited exclusive or partially exclusive basis pursuant to section 4(c) of this Act, the Contractor shall not comply with the provisions of subsection (b) of this section.

(3) The Government Agency may grant a limited exclusive or partially exclusive license to any Shared Foreground Patent pursuant to section 5 of this Act, and, upon the grant of such license, the Contractor shall not comply with the provisions of subsection (b) of this section. The Contractor shall, however, retain his license to any such Shared Foreground Patent if it is bringing, or has brought, it to the point of practical application and continues itself to work it.

(4) Subject to the foregoing paragraphs of this subsection, the provisions of the Act shall otherwise be applicable to any Shared Foreground Patent.

7. General Reservation to the Government Agency.

(a) Any license granted pursuant to this Act shall provide for —

(1) The licensee to provide written reports to the Government Agency, upon its request, at reasonable intervals, at least annually, containing information reasonably known to the licensee (or of which it may learn pursuant to normal business practices) concerning the utilization or working of the patented Technological Advance, and such other informaiton as the Government Agency may, in its discretion, determine necessary to effectuate the purposes of the program of the Government Agency, or otherwise protect the public interest;

(2) the right of the Government Agency to revoke a license after the Reasonable Period for Practice specified therein, in total (or to the fields of use and/or geographic areas in which the licensee has not brought the patented Technological Advance to the point of practical application and continues itself to work it), when it determines that some degree of exclusivity may be necessary to encourage some other licensee to bring the patented Technological Advance to the point of practical application and to have such other licensee continue itself to work it; and

subject to the rights retained by the Government Agency as provided in the original license and a copy thereof shall be furnished to the Government Agency.

(8) The Government Agency may require the payment of royalties and/or other consideration, when the licensing situation and the program of the Government Agency indicate that it is in the public interest to do so.

information on the design, construction, use and potential market for the patented Technological Advances.

(3) After an exclusive licensee has been selected, pursuant to paragraph (1) of this subsection, notice thereof shall be published in the Federal Register, and the Official Gazette of the United States Patent Office, and a copy of the notice shall be sent to the Attorney General.

Such notice shall include:

(A) Identification of the patented Technological Advance;

(B) Identification of the selected licensee;

(C) The terms and conditions upon which the limited exclusive or partially exclusive license will be granted to the selected licensee;

(D) A summary of the facts upon which the Government Agency made the determinations required by paragraph (1) of this subsection; and

(E) A statement to the effect that the limited exclusive or partially exclusive license will be granted unless an application for a nonexclusive license is received by the Government Agency within sixty days from publication of the notice in the Federal Register.

(4) The Contractor shall furnish to the Attorney General such further information relating to the grant of the license as the Attorney General may request, and in such manner and form as he may specify.

(5) The limited exclusive or partially exclusive license shall not be granted fewer than sixty days from the publication of such notice in the Federal Register. If the Government Agency received an application for a nonexclusive license, it shall determine whether or not to grant such license before granting a limited exclusive or partially exclusive license pursuant to this section.

(6) If a limited exclusive or partially exclusive license is granted pursuant to the provisions of this section, notice thereof shall be published in the Federal Register, and the Official Gazette of the United States Patent Office, and a copy of the notice shall be sent to the Attorney General.

plans to bring the patented Technological Advance to the point of practical application.

(C) The license shall require the licensee to bring the patented Technological Advance to the point of practical application within a Reasonable Period for Practice, and to continue to work it by itself,

(D) After termination of such Reasonable Period for Practice, the Government Agency involved may restrict the license to the fields of use and/or geographic areas in which the licensee has brought the patented Technological Advance to the point of practical application and continues to work it by itself.

(E) The proposed terms and scope of exclusivity are not substantially greater than necessary to permit the applicant to recoup its costs (and a reasonable profit thereon) for bringing the patented Technological Advance to the point of practical application.

(F) The licensee may further sublicense or assign its license; provided, however, that each such sublicense or assignment shall be granted subject to the rights retained by the Government Agency as provided in the original license, and a copy thereof shall be furnished to the Government Agency.

(G) The license shall be granted to United States citizens and United States corporations on a royalty-free basis; however, the Government Agency may require other consideration.

(3) After the exclusive license has been granted, pursuant to this subsection, notice thereof shall be published in the Federal Register, and the Official Gazette of the United States Patent Office, and a copy of the notice shall be sent to the Attorney General. Such notice shall include:

(A) Identification of the patented Technological Advance

(B) Identification ofthe licensee;

(C) The terms and conditions upon which the limited exclusive or partially exclusive license was granted to the licensee;and

(D) A summary of the facts upon which the Government Agency made the determinations required by subsections (b)(2) and (c)(2) of this section.

(4) The licensee shall furnish to the Attorney General such further information relating to the grant of the license as the Attorney General may request, and in such manner and form as he may specify.

§ 4. Exclusive Licensing -- At the Time of Contracting

(a) At the time of entering into a Contract, a Government Agency may agree to license to the Contractor any or all Foreground Patents to be issued as a result of such Contract on a limited exclusive or partially exclusive basis (hereinafter referred to in this Act as a "Prospective Exclusive License"), subject to the terms enumerated in this section, and except as provided in section 7 of this [Act.]

(b)(1) Any Contractor may request a Prospective Exclusive License, if,at the time of such request, it submits a showing that --

(A) The public interest would be served by the grant of such license, in view of the Contractor's intentions, plans and ability itself to bring the Foreground Technology to be developed within the scope of the Prospective Exclusive License to the point of practical application;

(B) The Contractor has an established nongovernmental commercial position in the field of technology involved in the Contract within the scope of the Prospective Exclusive License;

(C) The Contractor, in furtherance of its commercial position, has made substantial investment of technical or financial resources in research and development directly related to the work to be done under the Contract within the scope of the Prospective Exclusive License;

(D) The scope of the Prospective Exclusive License sought is limited to Foreground Patents in the areas of, and directly related to, the research and development previously undertaken by the Contractor with its own resources;

(E) The Contract is not part of a program to create, develop, or improve to the point of practical application products. processes, or methods which are intended for use by the general public, at home or abroad, or which will be required or will likely be required for use by governmental regulations;

§ 2. General Policy

(a) A Government Agency shall acquire all rights throughout the world to any Foreground Technology, and shall acquire title to any Foreground Patent.

(b) Promptly after the discovery of any Foreground Technology, the Contractor shall identify such Technological Advance and submit a Disclosure thereof to the Government Agency.

(c) Foreground Technology shall promptly be made available to the public through dedication, publication, or otherwise as provided by law. Foreground Patents shall promptly be made available to the public through licensing pursuant to this Act.

(d) This Act shall not require disclosure of information specifically required by Executive Order to be kept secret in the interest of national defense of foreign policy.

Draft of Patent Policy Bill

§ 1. Definitions

(a) "Government Agency" means an "executive agency" as defined by 5 U.S.C. §105, and the military departments as defined by 5 U.S.C. §102, or any instrumentality of either of them, that is a party to, or otherwise responsible for, any Contract.

(b) "Contract" means any contract, grant, agreement, commitment, understanding, or other arrangement (including any assignment, substitution of parties, or subcontract at any tier) entered into by any Government Agency (whether or not the participation of the Government Agency is limited to cosponsorship, cost-sharing, loan, loan guarantee, or other form of joint venture).

(c) "Technological Advance" means any invention, discovery, improvement, innovation, or other technological development which, without regard to the patentability thereof, falls within the classes of patentable subject matter defined in 35 U.S.C. §101.

(d) "Made," when used in relation to any Technological Advance, means the conception, first actual reduction to practice, or first practical application, thereof (1) in the course of work contemplated by and performed in the expectation of entering into a Contract, or (2) in the course of or under a Contract.

(e) "Foreground Technology" means a Technological Advance made in whole or substantial part in the course of, or under, any Contract.

(f) "Foreground Patent" means any United States or foreign patent issuing in respect of, or otherwise embodying, Foreground Technology.

(g) "Background Patent" means any United States or foreign patent which would be infringed by the practice or utilization of Foreground Technology.

(h) "Contractor" means any person, any public or private corporation, partnership, firm, association, or other legal entity (including) subsidiaries, affiliates, or other companies controlled or under common control of the Contractor) that is a party to a Contract, other than a Government Agency.

> for the entire Federal Government, and that Congress should not permit each agency to set up its own rules. That, in effect, is like having several different federal laws to cover the same subject."

I hope that Vice Admiral Rickover will himself appear at these hearings to reiterate these views that I have quoted and to emphasize the immediate need for Congress to come to grips with this serious problem. In 1960, when he spoke, Federal R and D expenditures amounted to less than $8 billion. For 1975, they will have more than doubled, reaching a total of $18.5 billion. For 1976, they are expected to reach nearly $22 billion, and the figure will steadily climb in the next few years, particularly in the area of energy.

It should be noted that R and D expenditures by the Federal Government now exceed those of private industry -- 53 percent of the total of $34.3 billion from all sources, as against 44 percent by industry and the remainder from universities and colleges and nonprofit institutions.

Of the total spent, industry accounts for 70 percent as performer, while only 15 percent represents work done by the Federal Government. And even this 15 percent is overstated, since much of the money does not represent real R and D work in government laboratories, but rather the costs of administration for the numerous projects contracted out to private industry.

My own personal preference is for a uniform patent policy applicable to all agencies of the government, in which title to inventions from federally funded research resides in the government and the technology is made available to all qualified applicants on a nonexclusive and nondiscriminatory basis.

If, however, this Committee is convinced that there are occasions when some exclusive licensing is required in the public interest, it may wish to consider the attached proposal which contains more safeguards for the public than currently exist or are contained in ERDA's Proposed Policies and Procedures published in the Federal Register of October 15, 1975.

Because of their technical character, I shall not attempt to summarize them here, but I would appreciate it if they are made a part of the record of this Committee

Senator Long, after making this point, asked Rickover:

> "Do you know in your field of atomic energy responsibility of any commercial application of something you have for which there would logically appear to be a present-day commerical market which is not being developed?"

Rickover replied, "No, sir. I don't know of a single instance," and then added, "In my opinion, this problem is largely fabricated in the minds of patent lawyers."

A stated purpose of this hearing is to "assess the desirability of mandatory licensing of energy-related patents." So far as background patents are concerned, it would seem to me absolutely necessary that the Administrator possess such authority if medium-sized and smaller firms are to play any role in this field. Patents held by large companies have become an important instrument for monopolization in industry.

The fact that the Patent Office issues a patent is no guarantee of its validity. In effect, a patent is no more than a paper writ permitting the patentee to sue others in the assertion of his monopoly rights. The ultimate determination of validity is made by the courts, but, unfortunately, only a few are ever subjected to judicial scrutiny. During a hearing in 1969 on the nomination of a patent commissioner, Senator John McClellan, chairman of the Senate Patents Committee, said that 72 percent of challenged patents are ultimately declared invalid by the courts.

The very language used in the trade provides clues to their current usage. There are umbrella patents, those written so broadly as to catch up all future innovations within its orbit; dragnet patents, designed to enmesh any impending inventions in its net; blocking patents, those placed at a strategic point in the technology to block advances by outsiders; fencing patents, nuisance value patents, and so on.

Many of these patents, if tested in the courts, would never survive. The ERDA Administrator will be in no position to make a judgment on their validity; and smaller firms simply do not possess the financial resources to carry on a prolonged litigative battle which ultimately

Under these circumstances, why then, is it necessary to also confer upon them monopoly rights on inventions financed by American taxpayers? Their research costs are fully paid for by the government; private contractors receive a fee for performance on such contracts, and their position is strengthened by access to the newest technologies.

According to Richard J. Barber, former law professor, in a report prepared for the Senate Monopoly Subcommittee, the result of also handing over patent rights is that:

> "The contractor is enabled in effect to levy a toll on the public for the use of inventions to which they have already paid for."

As he put it:

> "Let me draw an analogy to the construction of a bridge across a river in which the government pays the full costs, plus a profit, for the project. Wouldn't it be absurd if the government were then to give the bridge back to the contractor and permit him to set up toll booths to charge motorists a fee for crossing the bridge?"

Because of the importance of Professor Barber's brief report entitled "Economic and Legal Problems of Government Patent Policies," I should like to have it included in the published record.

Also, the testimony of Thomas Kauper, Assistant Attorney General, Antitrust Division, before the Subcommittee on Environment of the House Committee on Interior and Insular Affairs, February 1, 1974, on the subject of government patent policies.

One of the classic arguments used to defend the give-away authority to government agencies is that firms will refuse to enter into R and D contracts with the government unless they get exclusive rights to the inventions. According to Admiral Rickover, there is absolutely no truth to this statement.

In a hearing before the Senate Subcommittee on Patents, Copyrights, and Trademarks in 1961, he criticized the Department of Defense's long-standing policy of assigning

The legislation finally passed, the Federal Nonnuclear Energy Research and Development Act of 1974, was a great disappointment. It is a boon to large corporations and a disaster so far as the public is concerned. Though it contains language purporting to protect the public interest, its net effect is to give the Administrator of the agency the power to do as he pleases with these important properties.

The Conference Report of Congress on the bill sought to establish standards for the Administrator; it stated that:

> "The effect of Executive Branch agency decisions should not be to interfere with or to affect adversely or unnecessarily our free market economy, and intends that this section [on disposal of patent rights] be construed in a manner consistent with our fundamental national economic policy of fostering free competitive enterprise."

The text of ERDA's Proposed Policies and Procedures for the handling of inventions and patents, published in the Federal Register on October 15, 1975, is clear indication that the agency will move in the opposite direction. The complex, confusing regulations, similar to those previously issued by the General Services Administration for other government agencies, pay lip service to our national policy respecting the maintenance of a competitive economy. They are replete with high-sounding verbiage designed to give the impression that the Administrator will, at all times, defer to the interests of the public in making his decisions.

In reality, however, this verbiage is mere pious puffery to cloak what is frequently called the government's "give-away policy."

Stripped of its decorative language, the regulations constitute the grant of virtually absolute authority to the Administrator to preserve and strengthen the monopoly powers of the large firms already sitting astride the entire energy field.

In your own agency, you have at this time a recognized authority who, over the last several years, has spoken out against the give-away policy. Vice Admiral H. G. Rickover, Director, Division of Naval Reactors, has a special expertise since he has been responsible for

What we try to do is acquire a knowledge as to the market, what it is going to take to introduce the invention into the market, what will it take to develop the invention, how long will it take, is there any FDA approval required, how much of an investment will the licensee be required to put into the invention, how many interested licensees are there. Then, based on those inputs and like factors, we make a judgment, "Probably it will require some exclusivity," or "Probably it won't."

CHAIRMAN JOHNSON: As a doctrinary matter, many people who look at the universities say, "Well, their mission is to advance knowledge and put it out for the general public, no matter where it goes." This could be seen as a departure, this policy of providing licensing of certain inventions on an exclusive basis.

Has the university considered the problem in this light and determined whether it is necessary to go ahead, or what thought has it given to that problem?

MR. SMITH: Yes, we have considered it. M.I.T. certainly does not want to be in the position of affording anyone, any industrial concern, some sort of monopoly; however, we feel that it just doesn't appear to us that a policy of complete non-exclusive licensing will do what the patent statutes are designed to do, namely, transfer technology out to the public as quickly and efficiently as possible.

If in fact we could do it on a complete non-exclusive basis, we would be delighted, because it would solve a lot of problems. But, unfortunately, we feel we just honestly can't do it under some conditions, mainly because the exclusivity is what appears to give the incentive to the industrial licensee, at least sometimes.

CHAIRMAN JOHNSON: The university has found that a number of its inventions lay fallow because there was no one to take them up, is that fair to say?

MR. SMITH: I couldn't actually answer that. I don't know. It is so hard to tell when you look at the fallow inventions why they are there. I am not sure.

MR. BLACKMAN: We are making a lot of assumptions here about the relative effect of things. It struck me that the market factors and demand might be really more of a basing item on some of these things than exclusivity because

or you have a capability outside that you use that gives you that licensing potential.

MR. RITZMANN: Can you also comment on the ability of, say, M.I.T. to license inventions throughout the United States as opposed to a regional area where they may have more contacts?

MR. SMITH: I don't think we look on it as a problem geographically within the United States. We have a number of contacts with industry in addition to our licensing program, which itself uses various nationwide licensing means. We have an industrial liaison organization and a number of other types of organizations within the M.I.T. structure that interrelate with industry, so that there is not a constant overflow of concerns and companies. And they are not regionally located. They come from all parts of the United States.

MR. RITZMANN: Lastly, what is the policy with regard to foreign licensing?

MR. SMITH: We have begun, as of roughly four years ago, to actively concentrate on expanding our foreign licensing. It is nowhere equal to what we try to do in the United States, but it is gradually growing.

There are a certain number of countries that we listed as high on our priority on foreign filing, and we attempt to file, where we feel it is reasonably worthwhile, in those countries.

CHAIRMAN JOHNSON: Mr. Hill.

MR. HILL: Yes, sir.

This question is a little bit in line, I believe, with Mr. Eden's question. But I am interested not only in the number of inventions for which a patent was granted, but also in the money involved. What kind of licensing income is there and to whom does it go?

MR. SMITH: We are averaging -- and, again, this is an approximation -- somewhere under a million a year. This year will probably be around $1 million to $800 thousand of gross income, in which the inventor shares. Up until a year and a half ago, the inventor was entitled to share in 12 percent of gross royalties. We have changed that. We now have a sliding scale arrangement for inventors that

MR. SMITH: That is true. You get two ends on that increase. You do tend to get more inventions that have probably very little value.

But I would say we still have had a net increase of what we consider to be --

MR. BLACKMAN: Successful filings?

MR. SMITH: Yes.

MR. BLACKMAN: Could you give numbers on that? Quantitatively, what percentage of the increase?

MR. SMITH: What percentage of the increase resulted in successful filings?

MR. BLACKMAN: I am wondering about the effect of the IPAs in the case of successful filings, before and after, say, where it did and did not exist.

MR. SMITH: On the IPAs, the NSF one is the one freshest in my memory. In the last year, I think, we have come close to at least 50 percent increase in filings.

MR. BLACKMAN: Of successful filings, right?

MR. SMITH: In what sense do you mean "successful"?

MR. BLACKMAN: I mean they are not just disclosure applications; they have resulted in actual filings.

MR. SMITH: Patent applications, yes. Whether they are successful or not -- The reason I am hesitating, it is only a year and a half, and I am afraid not all of them will be successful in terms of licensing income or Patent Office action.

CHAIRMAN JOHNSON: Fine.

Mr. Kimball.

MR. KIMBALL: Under the IPAs which you currently have, do the government agencies retain any rights other than the royalties?

MR. SMITH: Yes. The IPAs have a number of limitations and controls in them. I think the biggest one

CHAIRMAN JOHNSON: Mr. Denny.

MR. DENNY: I don't so much have a question, but you raised some questions in your statement inquiring as to whether the universities must meet all thirteen standards and whether or not the universities would have a more stringent requirement than placed on industry.

I can assure you that the intent of those regulations was that you do not have to apply all thirteen standards. You do not have a stricter standard.

The conference report, I think, makes it fairly clear that the university patent policy was intended to help the universities because of their lack of manufacturing capability and commercial position, which are requirements or considerations. Therefore, that helps you balance out with industry on that point of view.

You will also notice in the conference report that it is referenced that, of the considerations set forth, all of them will not be applicable in every case. Therefore, instructions were given to identify those that are most decisive to the individual waiver consideration.

So our regulations may not put you in a position more favorable to industry, but there was no intent to put you behind industry, either.

MR. SMITH: Thank you, Mr. Denny.

CHAIRMAN JOHNSON: Mr. Eden.

MR. EDEN: I have three questions. First, how many patents are owned by your university? Second, how many of those are licensed? And, third, how many of those that are licensed are licensed exclusively?

MR. SMITH: I can't give you absolutely exact figures, but we file approximately 75 applications a year now. That is an increase from about 30 applications up until a few years back.

I think that is about where we will be holding, given our budget requirements. Of that number, we issue every year approximately 35 patents. We execute on the order of 8 to 10 licenses a year, somewhere in that vicinity. Not all of these licenses, obviously, produce royalty income. If we can receive some royalties out of a very, very small number of these, we would be extremely happy.

considerations. Are universities to assume that they will be held to meet more stringent requirements than industry in petitioning for waiver? Further, are the "considerations" to be interpreted as requirements or guidelines? In fact, certain of the considerations listed for waivers probably, in my opinion, can rarely be met by universities and seem specifically directed to industrial contractors. A similar comment applies to the section covering waivers to identified inventions.

We would propose that, in addition to the possibility of IPAs, the present waiver considerations be amended to clearly show that universities with approved technology transfer capabilities need not meet the other considerations which appear to relate to industrial contractors such as commercial position, extent of contractor's own private funding, and the like.

I understand that mandatory licensing of energy-related inventions is also being considered, and I wish, in closing, to offer a few comments on that subject as seen from the university.

Mandatory licensing, I assume, is based on the theory that by requiring an invention to be licensed to all interested licensees, the technology transfer process will be accelerated and the invention will thus benefit more of society quicker.

If this theory could be demonstrated as true, then universities would, I believe, support mandatory licensing with enthusiasm. Unfortunately, however, it seems more likely to us that this theory suffers from much the same defect as that which encourages dedicating inventions to the public rather than licensing them at all. Where is the incentive to a licensee to spend the often massive amounts of money and time to transfer the basic university invention into a commercially acceptable product? An invention available to all is often of interest to none. It appears likely that a program of mandatory licensing will lessen entrepreneurial incentive rather than increasing it and may well delay rather than hasten technology transfer. Consequently, we believe that mandatory licensing should not be incorporated into the ERDA patent policy.

In summary, we recommend the inclusion of an Institutional Patent Agreement in the ERDA policy, clarification of the waiver considerations and their impact to

extinguish, the incentive of those universities without an established licensing program to explore the possibilities of creating such a capability. For those universities with an existing viable licensing program, this policy will at a minimum significantly increase their administrative burdens while decreasing their licensing output.

M.I.T. proposes that the ERDA policy be amended to include the possibility of Institutional Patent Agreements for qualified universities. We believe that a program of IPAs with proper qualifications and safeguards will most effectively meet the goals of the ERDA patent policy as previously stated and will dispose of the fears and reservations expressed above.

Those universities that qualify for an IPA will be assured from the outset that title rights to inventions developed in the course of ERDA-sponsored research will vest with the university which will be free to license the invention to the private sector of the economy. The resulting flexibility will provide the university with a powerful tool for transfer of technology. It will allow and encourage the direct interaction between the licensee, the university, and the inventor with incentives for all.

A university operating under an IPA will be able to integrate inventions quickly and efficiently into its licensing program allowing the universities to establish contracts with potential licensees at an early stage and to be able to discuss licensing arrangements with such licensees without the uncertainty of possible government claim to ownership. As we all agree, it is not enough to have a patent position in a field of interest. It is necessary to have the means of identifying a particular market and locating someone who can commercialize the invention in that market. The university stands in a unique position in this regard. Although it does not itself market products, it does have continuing contacts with many industrial firms both large and small. There exists a constant exchange of information and interaction of ideas. By allowing properly qualified universities to work under an IPA, these universities will be encouraged from the very outset of sponsored research to use their interactions with industry to attempt to locate and identify prospective licensees within appropriate markets. Of equal importance, the university stands in the unique position of being able to offer to the licensee all of the back-up know-how which may be needed.

or potentially worthwhile, will not benefit the society as a whole unless someone is willing and has been provided with sufficient incentive to take the necessary steps to transfer the university-developed technology into a form capable of assuming commercial utility.

However, it is also a fact that the transfer of technology takes time, requires specialized expertise, and costs considerable amounts of money. To encourage industry to spend that needed time, effort, and money to transfer the technology from the university to the market, the university must be able to offer prospective licensees sound patent protection coupled with reasonable license terms and royalty rates and, sometimes, a degree of exclusivity. Without such inducements, many excellent inventions would never be recognized or used; and when that happens, it is the public which suffers the greatest harm. Within our free enterprise system, the profit motive is an absolutely essential ingredient to the effective transfer of technology in a manner to benefit our society.

There are many examples that illustrate the necessity of time, effort, and money in the technology transfer process. Since production, commercialization, and the like cannot appropriately be done by a university, nor for that matter by the government, this task must be handled by the private sector of our economy. It is only reasonable to expect that no company will take on such a task unless it is assured of legal protection in the form of a patent and of reasonable licensing arrangements.

M.I.T.'s experience tends to prove this. For example, methods of producing Vitamin A and penicillin were both discovered at M.I.T. Although the technical feasibility of these inventions was sucessfully demonstrated at the university, a considerable amount of clinical testing and governmental approvals were necessary prior to marketing. This, in turn, cost considerable money and required many risk decisions to be made. The university was certainly not in a position to provide these necessary funds, nor did it have the marketing expertise. Commercial licensees within the private sector were eventually discovered by the university, and these licensees did risk their money and time, and eventually these inventions became available to the public and are still in use today. The university's ownership of patents and its ability to negotiate flexible and reasonable licenses was a major inducement to this technology transfer.

CHAIRMAN JOHNSON: Mr. Ohlson, thank you very much. We will study the AIA recommended legislation most carefully. We look forward to detailed comments I know you will provide.

MR. OHLSON: I was going to add that. We understood the hearing was limited to the policy; and, of course, on or before December 1st, we will file comments on ERDA's proposed patent regulations.

CHAIRMAN JOHNSON: Our next participant is Mr. Arthur A. Smith, General Counsel of Massachusetts Institute of Technology.

Mr. Smith, we would be delighted to have your presentation at this time.

MR. SMITH: Thank you.

I would like to apologize for being late. I had quite a plane flight.

I do wish to thank you for the opportunity afforded me on behalf of the Massachusetts Institute of Technology to participate in this public hearing on ERDA's proposed patent policy. We believe that communication of this type between universities, the public, and government is healthy and encouraging; and we trust will result in a constructive exchange of ideas and approaches in handling the patent implications of our energy program.

As you know, the ERDA policy as proposed does state a number of objectives, one of which is making the benefits of the program widely available to the public in the shortest practicable time, promoting the commercial utilization of such inventions, encouraging participation by private persons in the program, and fostering competition and preventing undue market concentration on the creation or maintenance of other situations inconsistent with the anti-trust laws.

With each of these goals the university is fully and completely in accord, since they represent the objectives of M.I.T.'s own patent licensing policy and, I am sure, that of other universities. It is in the perception of the means for obtaining these goals that differences arise between the university and the proposed ERDA policy, and it is to those differences and their possible solutions from our point of view that I will attempt to address myself today.

a selection is made of one individual within the public, and the entire force of the government is put behind that individual who has the exclusive rights in this area. I find it difficult to see this as our concept of government. I don't know but what the courts wouldn't hold the government estopped to enforce such patent rights because, as you know, the government is a necessary party to the enforcement of such an exclusive license. Here, we have the anomaly of the government supporting someone seeking an injunction to prevent someone else who is trying to meet a public need.

Title in the government presents very complex legal problems as well as, to my mind, political problems of how does the government act in its role as sovereign.

CHAIRMAN JOHNSON: Do you think it is impractical or impolitic for the government to provide exclusive licenses to government-owned inventions assuming it has the statutory authority?

MR. OHLSON: It is and has been our feeling that, to avoid all the legal complications, we would prefer to see such government-owned inventions dedicated to the public either by formal dedication in the Patent Office as provided by statute, or by a general licensing statute such as you have in the Atomic Energy on certain nuclear materials.

We don't believe there should be exclusive licensing of government-owned patents.

CHAIRMAN JOHNSON: Do other members of the panel wish to question Mr. Ohlson?

MR. WITT: You make a point that the incentives will certainly be decreased, less incentive for industry in the patent field here. Now, do you have a large body of evidence which indicates that there has been a fighting off of industry and a dampening of incentives and so forth? What do you have to go on?

MR. OHLSON: What we are going on principally, Mr. Witt, is the fact that this is seeking to prove a negative. We are saying how do you know the reason why Company A or Company B did not bid on a particular program? You must consider that most of our companies are run by intelligent men who know their business. They certainly are not going to jeopardize a proprietary position, upon which they may have spent literally millions of dollars to develop, by taking a relatively small government contract, and thus put

This recommended policy, expressed as proposed legislation, is set forth in the attached document entitled "A Proposed Government Procurement Invention Incentive Act" which has been approved by the AIA Board of Governors. AIA respectfully urges ERDA to consider the concepts of the patent policy devised by AIA and to recommend them to the Congress for consideration as an appropriate ERDA policy.

As for the issue of mandatory licensing, AIA has consistently opposed it with respect to privately owned patents -- as well as proprietary information -- on the basis that mandatory licensing not only negates the incentives of our Patent System, but also is in derogation of private property rights.

The policy recommended by AIA in the attached draft legislation contains provisions (e.g., see Section 7) for the purpose of defining the parameters within which a contractor should be required to license background patents.

Thus, we believe that such licensing should be required only to the extent absolutely necessary to reproduce the end item developed in the government contract under which the invention dominated by the contractor's background patents was made and that the contractor be equitably compensated. We respectfully submit that any broader requirement to license a contractor's background patents or the mandatory licensing of privately owned patents would have a significant adverse impact on the participation of industry in the attainment of ERDA's goals.

In conclusion, AIA respectfully urges that ERDA seek repeal of patent policies now imposed by statute and recommend to Congress the enactment of a policy along the lines proposed by AIA. As to mandatory licensing, it is respectfully submitted that there is no demonstrated need for such incentive-destroying statutory provisions and that Congress be so advised.

Gentlemen, that concludes our formal statement. We would be happy to answer any questions here or to provide them later for the record should you so choose.

CHAIRMAN JOHNSON: Thank you very much, Mr. Ohlson.

I have a question relating to the public rights section of the AIA draft. It is a perplexing question.

Also, it is brief because we believe you will hear many of the points we would discuss and we have documented our statement with two supporting studies. We request that our statement and the attached studies be made a part of the record of these hearings.

The Aerospace Industries Association of America, Inc.,(AIA), is the national trade association representing the major manufacturers of aeronautics and astronautics vehicles, both manned and unmanned, as well as the power plants and components thereof. AIA member companies being at the forefront of highly complex advanced technology have learned through many years of experience the benefits of the U. S. Patent System.

AIA supports federal legislation and policies which improve our Patent System and seek to maximize the incentives inherent in that System. AIA therefore welcomes this opportunity to present views to the Energy Research and Development Administration (ERDA) in response to the Notice appearing in the October 15, 1975, Federal Register.

ERDA is to be complimented on holding these hearings to obtain public views on: (1) the patent policies ERDA should follow; (2) any required revisions and supporting reasons; and (3) the necessity, or lack thereof, of mandatory including background licensing of energy-related patents, all to carry out ERDA's statutory purposes.

This involvement of the public reflects ERDA's recognition of the need for industry's wholehearted support of ERDA's programs, if ERDA is to achieve its purposes, and the need to provide positive incentives to industry to assure such support.

Although the time allotted by Congress for ERDA to gain experience under its patent policies and to report thereon is relatively short, fortunately the ERDA officials handling this matter have had broad experience and have demonstrated superior knowledge of the federal procurement process.

Before addressing the three specific issues of this hearing, it appears that a brief outline of the past activities of the AIA in this area may be helpful in laying the foundation for AIA comments.

AIA policy continues to foster the U. S. Patent System and support federal activities seeking to improve and

correctly, was about $700,000, roughly. This was the gross royalty income to the University. The University's policy on royalty distribution is that we take 15 percent off the top for general administrative costs. We then take out all out-of-pocket expenses. The University has no patent attorneys on its staff. It farms out all its prosecutions. The inventors get half of what is left. We share 50-50 of the net with the inventors. As far as the University's share is concerned, that all goes back into research and education.

CHAIRMAN JOHNSON: Mr. Witt.

MR. WITT: You mention in the statement that was handed out here, on the bottom of the page 4, you say the Administrator has to impose on nonprofit educational institutions not only the requirement that they have an approved program for technology transfer, but the further requirement that all other criteria noted in the legislation be met by the institution.

Then you say this is totally inconsistent with the intent of the Congress to give special treatment to nonprofit educational institutions and so forth.

This intent of the Congress is reflected where; just in general legislation, or specific legislation dealing with patents?

MR. OWENS: No. The intent is set forth in the particular legislation we are talking about. I think on page 1 of my statement I cite from the particular legislation involved. As I recall, one of the provisions under which the Administrator can make a waiver is under Section 11: "In the case of nonprofit educational institutions, the extent to which such institution has a technology transfer capability and program approved by the Administrator as being consistent with the applicable policies of this section."

So there is specific reference to educational institutions in the legislation.

MR. WITT: You feel it wasn't picked up adequately enough, then, in the ERDA proposal?

MR. OWENS: These are our feelings.

CHAIRMAN JOHNSON: It is true, Mr. Owens, that that is a criteria which is listed as additive to the others rather than as substituting.

is that University inventions are usually very basic. They are not usually developed beyond the prototype stage. It is therefore critical that there be some mechanism to get those inventions licensed to industry for the necessary commercial development.

Again, it is our prejudiced feeling that if the federal government retains ownership of such inventions, there is no strong incentive for anyone to license and develop those inventions. Our incentive, of course, is the financial incentive, trying to get royalties to support further research within the University.

CHAIRMAN JOHNSON: Do you have examples of inventions that are owned by the federal government which have not been practiced because they weren't available on an exclusive basis?

MR. OWENS: All I can point to, I guess, is the portfolio of federal government inventions which is, as I understand, some 24- or 25,000 inventions, the great majority of which, as far as I know, are not utilized.

I have heard -- and here again, of course, this is only hearsay -- in discussions with people from private industry, that in many situations they chose not to try to exploit a federal government invention because of the fact they couldn't get exclusivity or the paperwork was so cumbersome it didn't seem worthwhile. In our own situation, I know it is not unusual for us to actually license on an exclusive basis for a period of years, and the license becoming nonexclusive subsequent to that period of years. It is our belief that granting a period of exclusivity is really the only way University inventions can be made available to the public because of the incentive it gives to the particular licensee.

CHAIRMAN JOHNSON: May I ask how the term of the period of exclusivity is fixed? Is there any direct criteria applied?

MR. OWENS: As far as criteria are concerned, we try to make it as short as possible and, of course, the licensee tries to make it as long as possible. The typical period with us is about five years, and nonexclusive thereafter for the life of the patent.

CHAIRMAN JOHNSON: Mr. Eden, Department of Commerce.

institutions to ensure that consideration will be given to their desire to retain patent rights and inventions developed under contracts and grants with ERDA. I am personally and particularly concerned that the proposed regulations and other material I have heard discussed do not provide for or contemplate the implementation of the special provision for educational institutions.

The proposal which we make in the paper I presented is recommended. You are all familiar, I am sure, with the July 1975 Report of the University Patent Policy ad hoc Subcommittee of the Executive Subcommittee of the Committee on Government Patent Policy of the Federal Council for Science and Technology. In that report, it is recommended that educational institutions with a demonstrated and approved patent licensing capacity be permitted, under an institutional patent agreement, to obtain patent rights and to know at time of contracting or receipt of grant that they will be able to retain patent rights.

This practice has been followed by the Department of Health, Education, and Welfare for many years with a great deal of success and is now being followed by the National Science Foundation.

The institutional patent agreement would enable the University to benefit from the retention of patent rights. It would be able to utilize these patent rights to generate further income for the University. As you know from having studied our patent policy in years past, in the University system all of our royalty income, with the exception of that which goes to the inventors, is utilized for further scientific activities within the institution.

In a peripheral area -- if I may comment for one moment on a detail of the proposed regulations, putting on my other hat as a contracting officer for the University and the procurement officer for the University -- we have many administrative problems as a result of the mandatory language that we must include in our purchase orders and subcontracts under government contracts or grants. As you can appreciate, the University has contracts and grants with just about every federal agency. To have to use different purchase order forms for different federal agencies for subcontracting activities causes a great deal of administrative problems, and I am continually being complained to by my contract and grant and procurement people that every time a new change comes out that they have to scrap thousands of forms and change words. This is not only a waste of resources but money and time.

number of years. We would have to watch to see what happens.

I think one problem is that our group is so opposed to the whole concept of mandatory licensing that we cannot get terribly interested in solution of this particular problem.

MR. WITT: That is one reason I asked the question.

One other question, Tenney, if I could?

CHAIRMAN JOHNSON: Yes.

MR. WITT: You used the phrase "widespread fear and widespread belief" and so forth.

This refers to your organization; "widespread," does that mean a large number of your group?

MS. NIES: Yes. It isn't based on a survey, just on discussions. "Widespread" in the sense that you will hear nothing to the contrary. People are afraid that there will be no waivers. The safe decision is to deny the waiver. Also, it is very expensive to put together the data necessary to obtain the waiver, and it is necessary to disclose confidential business information. Contractors are just not going to do it.

MR. WITT: Thank you.

MR. JEFFERSON HILL: I have one question.

You referred to the widespread belief, in your statement, that the contractor may be disinclined to seek a waiver because of the necessity to provide types of information, "often of a highly proprietary business nature."

MS. NIES: Yes.

MR. JEFFERSON HILL: My question is, other than trade secrets, what kind of proprietary business information are you referring to?

MS. NIES: Projected marketing. Certainly nothing anybody else needs to know. That type of confidential information.

MR. JEFFERSON HILL: Anything else?

Congress considered and excluded from the nonnuclear R and D legislation any requirement for licensing background technology. Yet, ERDA now, by regulation, proposes to require it. We trust this is not coupled with a proposal to amend the statute. At the least, ERDA should retain flexibility with respect to its nonnuclear contracts.

Moreover, we believe the disincentive inherent in such provisions will insure that the most competent and experienced firms will not seek contracts since they have usually invested a great deal of money in acquiring their technology and do not want to risk dissipating their competitive position.

If they do become contractors and can reasonably separate their commercial interest from government R and D, there will be an incentive to do so. This is not to imply that ERDA will not receive full performance on a specific contract. Rather, if a contractor is not exposed to the risk of confiscation of his background patents and proprietary data, ERDA will receive the additional benefit of this technology in the performance of a contract.

We have proposed certain amendments to the regulations with respect to these provisions to limit their application, and we will be submitting a detailed statement of all of the regulations by your due date.

I thank you again for the opportunity to express our view that ERDA should adopt as a uniform patent policy one which will provide the contractor with exclusive rights for a period of years at the time of contracting. This approach, we believe, will effectuate ERDA's mandate. You must seek a delicate balance of objectives here. We recognize the difficulty in your task and wish you the wisdom of Solomon.

I would be happy to answer any questions that I can and take questions back to our Council and members for their consideration and submittal of a reply at a later time.

Thank you.

CHAIRMAN JOHNSON: Thank you very much.

I would like to ask a question as to how the Bar Association would deal with the problem that ERDA has, where it is developing new technology and because of the contractors' background position, the contractor is the only one able to

the exclusive rights so granted can be expected to provide the commercial incentive believed to be needed by industry in the accomplishment of ERDA's objectives.

Some would urge that all inventions arising out of the government-funded research should belong to the government to the exclusion of the contractor. Commissioner of Patents Dann, in an address on February 24, 1975, answered:

"But this tends to discourage participation in government programs by the most competent organizations."

If I may refer to a field with which I am more familiar, the Office of Education originally adopted a policy that educational materials developed under contract to the government could not be copyrighted but had to be placed in the public domain. No one had the exclusive right to exploit such materials. No advocates of the public domain policy believed that commercial publishers would use these materials. Moreover, since publishers would not have to pay royalties to the original author, the public would enjoy the benefits of lower prices.

It did not work out that way. Publishers could not be attracted to publish public domain materials. Expensive research in education lay in boxes at HEW. Incentive was necessary to get publishers to publish this material.

As a result, the Office of Education adopted a more flexible policy permitting, indeed, encouraging, the copyright of materials to provide exclusive rights, although for a more limited time than the normal copyright period.

With respect to the problem at hand, we submit that the patent policy which should do most for the creation of new technology needed to attain ERDA's mission is one that similarly would provide the contractor with the certainty of exclusive commercial rights for a period of years.

It may be premature to evaluate ERDA's title-with-waiver policy. We can only say that there is widespread fear that in practice there will be no waivers to any great extent. There is widespread belief that the Administration will be most reluctant to grant waivers. Refusal is a "safe" decision, whereas granting a waiver may result in criticism later.

There is a widespread belief that the contractors will generally be disinclined to seek waivers because of the paperwork involved, the need to disclose confidential business

The purpose of the hearings today is to obtain comments from representatives from all segments of the public on such questions as what patent policies should ERDA follow in order to carry out the purposes of the Atomic Energy Act and the Federal Nonnuclear Energy Act.

What modifications, if any, to these statutory enactments should ERDA propose to the Congress? Why are such modifications needed?

Is legislation requiring mandatory licensing of energy-related patents needed to carry out the purposes of the Federal Nonnuclear Research and Development Act of 1974?

Mandatory licensing may be broadly defined as requiring a patent owner to forego the injunctive remedy provided by Title 35 of the United States code against the infringing acts of another.

If legislation is required, what should be its essential provisions?

By receiving the public's views on questions such as these, our ERDA interagency task force hopes to assess the public's concerns so that we may improve our present policy.

Our format during these hearings will be that each participant on the agenda making an oral presentation will be asked to address the interagency task force sitting at the table and around the sides and respond to questions.

However, we will limit the questions to those from members of the task force.

So I think we are now ready to begin.

Our first person to make a presentation is Helen W. Nies, Chairman of the P., T., and C. Section of the D. C. Bar Association.

We are pleased for you to present your statement at this time.

MS. NIES: Thank you.

I am Chairman of the Patent, Trademark, and Copyright Section of the Bar Association of the District of Columbia. Our Association is a professional voluntary

the invention, and thus we were in fact going to give an exclusive license to a qualified applicant after a public hearing.

The Administrator is given clear authority to license ERDA inventions on an exclusive or non-exclusive basis.

In granting exclusive licenses, however, the Administrator has to be concerned that he is not going to lessen competition and that the licenses are not going to result in situations of undue concentration in any line of commerce in any section of the country as those words are used in the antitrust laws.

Where the government's rights have been waived or a license granted, the government will retain certain march-in rights, a term I am sure you are all familiar with.

Under these additional rights, the exclusive license may be lifted or the waived rights may be reclaimed by the Government if there is an indication that the use of the invention has been in violation of the antitrust laws or that the licensee or owner is not trying to accomplish early commercial utilization of the invention.

The question of background rights is not explicitly covered in the legislation. We propose to deal with it in the regulations.

We recognize that the degree of Government rights to a contractor's background patent position is a sensitive matter, one of real concern to both ERDA and industry.

It will be the usual situation that contractors qualified to perform R and D work will have background expertise that is likely to include patented technology.

If the contractor is to use his best efforts under the contract, then his background patents will most likely cover the contract results.

From ERDA's point of view, therefore, care must be taken to prevent a situation where the contractor will be the only firm that can utilize the contract results because of its prior patent position.

On the other hand, the contractor's legitimate rights are entitled to protection.

To best understand the scope of today's hearings, I would like to give you a brief overview of our present patent policy.

Our patent policy is controlled by two legislative enactments, the Atomic Energy Act of 1954 and the Federal Nonnuclear Energy Research and Development Act of 1974.

Under both of these statutory provisions, the Administration will normally acquire title to inventions made under ERDA contracts.

Both statutes give to the Administrator discretionary authority to waive many of the rights when to do so is determined to be in the best interests of the United States and the general public.

Upon the formation of ERDA in January, 1975, the only implementing regulations of our legislative enactments were the then-existing Atomic Energy Commission regulations interpreting the Atomic Energy Act.

In April, 1975, ERDA issued temporary implementing regulations to provide interim guidance for ERDA's two contracting and waiver patent policies.

ERDA, in publishing regulations on October 15, 1975, copies of which were available in the lobby, harmonized for the first time its patent policies in regard to both nuclear and nonnuclear activities into one set of regulations.

It may be noted that Section 9 of the Nonnuclear Act provides more detailed guidance in the administration of patent policy than does Section 152 of the Atomic Energy Act.

However, this guidance was derived from established patent legislation and government patent policies, and is of the type normally considered in making determinations under any flexible government patent policy.

Section 9 of the Federal Nonnuclear Energy Research and Development Act provides that the Administrator may waive all or any part of the rights to any invention or class of invention made under ERDA contracts if he determines that the interests of the United States and the general public will best be served by such waiver.