issued patents which would give the contractor an excellent opportunity to plan capital investment early in the game. This exclusive license could be limited to a term of years but probably should not be limited to less than ten in order for the contractor to recoup his investment. This intermediate position (between title and non-exclusive license) would be useful where outright title to the contractor might be met with some reservations by ERDA and still might provide the necessary incentive for the contractor to forge ahead in making the subject matter of the contract quickly available to the general public. Such a right of exclusivity for planning capital expenditures in making technology available to the general public is most important.

At the outset of research contracts, many times the question of whether a contractor-conceived invention has in fact been reduced to practice sufficiently to qualify as a background invention rather than as a subject invention can be troublesome I am sure you are aware of the cases in this area. I would suggest that a provision be made for the agency and the contractor to agree in advance where a proper showing is made by the contractor that the invention has (or has not been) reduced to practice prior to the contract undertaking, which agreement would be binding on the agency and create at least a rebuttable presumption in favor of the contractor in any subsequent action with third parties or other agencies.

With respect to the requirement that contractor grant background patent licenses to responsible parties upon written application by the ERDA, I would ask that you consider an amendment thereto whereby the contractor upon such application either agree to the grant or demonstrate to the ERDA that the public interest will be better served if the contractor is given a reasonable time in which to supply the subject matter covered by the background patent in sufficient quantity and at reasonable prices to satisfy market needs. I appreciate that your proposed section takes into account some of these factors but it does it in a retroactive manner rather than a prospective manner. That is to say, if the contractor at the time of the request felt he was able on his own or through a licensee of his choosing is able to produce the subject matter in sufficient quantity and at a reasonable price to satisfy market needs, he should be given the right to do so. As the regulation now stands he must already have been doing this or otherwise is subject to the grant of the license to others. The contractor thus loses control over exclusivity of his background patents. If he takes a government contract under those conditions, any prospective licensee must be advised that his exclusivity would be marred by a possible request from someone else in the future if at the time of the request the subject matter covered by the background patents was not in the form of a commercial item. The contractor should have at least the right to reduce the subject matter within a

Organizations within the Government currently address computer software differently in their respective procurement regulations. Not all are satisfactory from the CBEMA standpoint. For example, Defense Procurement Circular (DPC) No. 74-3 (issued in November, 1974) contains a procurement regulation relating to the Government's rights in computer software which is causing serious problems for the commercial ADP industry. This regulation applies to Government funded software as well as existing and future privately funded proprietary software which is normally commercially oriented. Application of this regulation to commercial ADPE procurements has most serious consequences adversely affecting proprietary software property rights in the commercial markets of the entire industry.

The General Services Administration (GSA), which it is understood has Government-wide procurement coordinating authority over commercially available, general purpose ADPE, has recently developed and issued a Standard Solicitation Document for ADP Systems after extensive consultation with Federal agencies and the ADP industry. GSA is currently promulgating regulations which will provide formal guidelines for its use. This document includes a Standard Form contract provision for Government Rights in Computer Software. Its adoption for procurement of Contractor proprietary software will avoid such industry problems as arise from the application of such procurement regulations, for example, as adopted in DPC 74-3. We submit this matter to you for review and consideration with respect to ERDA related procurement of Contractor proprietary software.

Subsection (c)(1)(ii) within the aforementioned Rights In Technical Data clause requires the Contractor to grant to the Government and others a royalty-free license to reproduce, dispose of, etc., "any and all copyrighted or copyrightable work not first produced or composed by the Contractor in the performance of this contract...." Since it is currently a common marketing practice for computer software developers to make their respective proprietary computer software available as a copyrighted work, and under an agreement not to provide or make such software available to others, CBEMA recommends that protection of private sector investments in computer software design and development calls for insertion of the following phrase after "work" in the quoted language "(c)(1)(ii)" above:

", other than computer software,"

CBEMA recommends a similar amendment to subsection (d)(1)(ii) within the clause entitled "Rights in Technical Data-Special" so that the subsection with amendment (see underlined) reads as follows:

The background patent provisions of the patent policy is another aspect which could be a deterrent to contracting with ERDA. We generally have no problems with the requirement that U.S. background patents be licensed royalty-free to the Government for research, development and demonstration purposes. Also, the situations under which the contractor is required to license third parties under U.S. background patents would not appear to be overly unreasonable although problems could arise in the determinations as to what is a competitve alternative and a reasonable price. The problems we have with this "compulsory licensing" provision is the mechanism by which "terms reasonable under the circumstances" are to be determined and who is to make the determination. Since the injuctive relief is no longer available to the contractor, he is not negotiating with the third party with the same strength he would be if it were not for the compulsory licensing. With respect to foreign background patents, it can be seen that this compulsory licensing provision could be a serious detriment to a contractor's ongoing foreign licensing activities.

The Technical Data provisions of the ERDA proposed policy create some additional problems with respect to entering into ERDA contracts. A company such as ours which has a long history in both the fossil and nuclear energy areas naturally has a large background of data and information some of which is highly proprietary and confidential. One reason for ERDA's contracting with a company such as C-E is this background data and expertise developed over so many years. Some of this data we would not be willing to make publically available. One example is highly sophisticated computer programs which it would be advantageous to use in the course of an ERDA contract but which we would not be willing to make

One of the serious defects of the ERDA Patent Policy as viewed by our company is the provision that the contractor will retain only a revocable license to Subject Inventions. We understood ERDA's reasons for wanting revocable licenses but it is still considered to be inequitable that the contractor's rights to use a Subject Invention can be terminated even in the limited situations provided for in the policy. First of all, it is not clear just what level of activity or contemplated future activity will prevent the revocation of the license. Secondly, it often occurs that a contractor will have a number of different alternative approaches being considered as a solution to a particular problem. There may be an extended period of time, perhaps extending over a period of years, for example, in the nuclear area, during which these alternative approaches are being periodically evaluated for application but not otherwise actively pursued. Thirdly, it is sometimes difficult to have a new idea accepted by the purchasing public. We would consider it inequitable that the contractor's rights to use Subject Inventions could be foreclosed in these instances. We would hope that the wiaver provisions as they might apply in obtaining irrevocable licenses would be liberally applied. However, as earlier expressed, we fear that this will not be the approach that is taken by ERDA. Only time will tell. If the contractor cannot obtain an assurance of the right to use the invention by way of an irrevocable license, the uncertainty will make it difficult to plan future activity based on that invention.

The second area of major concern about the ERDA Patent Policy is the disposition of foreign patent rights and the serious limitations placed on the foreign patent rights which the contractor does retain. C-E has, for many decades, been very active in the foreign licensing area.

The most significant contract currently under way is the contract entered into in 1974 with the Office of Coal Research to design, build and operate a 5-ton-per-hour coal gasification process development unit. This project is funded jointly by C-E and OCR with OCR bearing two-thirds of the estimated $20.6 million cost. In this instance, we were able to negotiate a contract in which patents are to be owned jointly by C-E and the Government with adjustments being made in royalties to account for this joint funding. C-E is currently in the process of proposing to ERDA two cost sharing projects, one relating to an industrial fluidized-bed boiler demonstration project ($15-$25 million) and the other relating to a coal gasification demonstration plant ($20-$40 million). The contracts which C-E has entered into with the Government have related to both nuclear and non-nuclear energy.

Since C-E has been and wishes to continue to be a significant Government contractor in the energy area, it has a substantial interest in the patent policies under which ERDA will operate. We agree with ERDA that these policies should stimulate the best available contractors to enter into energy related contracts with ERDA as well as to stimulate the utilization and commercialization of the inventions derived from such contracts. It is our opinion that certain aspects of the proposed ERDA policy do not foster these goals in the best possible way.

Addressing first the subject of the allocation of the principal rights to Subject Inventions in the U.S., C-E would prefer that title be retained by the contractor with the Government reserving an irrevocable, non-exclusive, paid-up license for Governmental purposes. Also, such a provision could provide for a liberal licensing policy on the part of the

certain "march-in" rights to assure that if the contractor did not exploit the invention within a reasonable period of time, title to the invention could be obtained by the Government so it could be licensed to another.

ERDA patent policy could, of course, preserve to the Government a royalty free, nonexclusive license for governmental purposes without seriously detracting from the advantages of leaving title to the inventions to the contractor.

IS MANDATORY LICENSING OF ENERGY RELATED PATENTS NEEDED TO CARRY OUT THE PURPOSES OF THE FEDERAL NONNUCLEAR ENERGY RESEARCH AND DEVELOPMENT ACT?

No, definitely not. This is a remedy for an ill that does not exist and would be a dangerous first step toward destruction of the incentive of the patent system.

If any invention really would be of benefit to the public there would inherently be a potential market which the patent owner would not ignore and industry would surely bring the invention to the market place.

In those very few instances where Courts have found that public policy necessitates licensing of competitors they have been able to remedy the situation under existing law. It is sufficient, therefore, to leave the law as is. There is no general ill that requires, or even suggests, the drastic remedy of mandatory licensing.

If there were mandatory licensing, the incentive to invest effort and risk capital to bring an invention to the market place would be seriously eroded. No one company could be expected to make such an investment if faced with the prospects of its competitors subsequently obtaining a mandatory license to take advantage of the effort and expense already expended.

CONCLUSION

The patent provisions of the Atomic Energy Act and the Federal Nonnuclear Energy Research and Development Act are too rigid and do not permit the Administrator the flexibility needed to assure participation of the most highly qualified potential contractors in assisting ERDA to accomplish its objectives. Changes in those patent

ly high in relation to cost-benefits of conventional apparatus.

Second, a business venture that reaps an extremely high profit derived from a high price coupled with a potentially large market demand will encourage potential competitors to divert their R&D funds to the area of the innovation in the hope of coming up with new technical approaches not infringing the patent rights. Although the pioneering company and the ERDA may have spent five to ten years in research, development, and preparation for production and commercial introduction of a synthetic fuel, it is amazing how fast this lead time can be drastically reduced by a dozen other companies, each spending perhaps as much or more money than the innovator in a crash program that has the benefit of starting out from a proven technical approach and market reaction thereto as opposed to just a concept and a forecast of a possible unsatisfied need.

Third, the company must be careful to establish a strong foothold in the mass market so that a reasonable market share can be assured despite subsequent stiff competition, and this can normally only be accomplished by penetration pricing (in other words, at a reasonably low price per unit) encouraging purchasers to switch from the closest-substitute conventional products.

Fourth, at any given time, there normally are several if not many firms conducting R&D in a particular problem area regardless of whether some are government contractors. Chances are, the first company to introduce solar energy on a widespread scale will be forced to meet the price competition of the next entrant into the market with a competitive process that does not infringe the first innovator's patent because of the use of a different technical approach. Let's face it. We are no longer in the age of James Joule, energy R&D pioneers, James Watt and / when a patent on a solar device literally meant a seventeen / year monopoly. Today, the solar energy prior art would prevent anyone from monopolizing this energy source with broad patent claims.

In addition to spurring utilization of government-funded inventions and stimulating competitive R&D by other companies that design around the exclusive rights granted to the government contractor, who has pioneered a new technology or opened up a profitable new market application; the exclusive licensing proposed in this testimony / more widespread

iods of exclusivity is that many entrepreneurs and small businesses will not be able to achieve market introduction and meet market demand for their discoveries right away because of limited funds and production resources. It is not uncommon for more than a half dozen years to pass by while capital is attracted to finish development and expand the facilities and then finish all of the many things which must be attended to prior to full-scale production and distribution.

Even if the small or medium sized business does have available the resources for rapidly expanding to meet the requirements of the national market, the pricing facts of life in industry dictate that prices be set high on new products and equipment, thereby delaying widespread market satisfaction. There are several reasons for this.

First, the energy R&D company will be forced to set a certain minimum price per unit in order to recoup its total R&D, marketing research, and start-up investment within a certain maximum number of years based on anticipated sales volume and profit margin after operating expenses and taxes are deducted from gross revenue received at the set price. It cannot be expected that the initial price per unit set will be at all in the same ball park or range as the price per unit of the closest substitute products which presumably are no longer as desirable as the patented innovation and whose price per unit has been driven down by competitive forces as well as mass production techniques or market saturation.

Second, not only does the initial price have to be set high in order to recoup the investment in the new product being introduced, but also to recoup capital invested in designs and products possibly having no relation at all to the final product development or breakthrough to be commercialized. The reason for this is that the statistics show that as many as /four out of every /five products developed are either technical or market failures. This means that for every innovation that is commercially successful, the profits that are derived therefrom must be sufficient to sustain the innovator's investment in developing and marketing /five innovations, /four of which are abandoned at various stages of development and commercialization. Even a former Commissioner of Patents has recog-

The firms that have little energy expertise and therefore little to lose in contracting with the government will look upon ERDA contracts as another source of revenue rather than as the start of an R&D venture which could mushroom into a possible commercial application. Because there would not be a strong motivation to commercially apply the energy solutions contracted for by the ERDA, such contractors would lack entrepreneurial incentive and enthusiasm to put in peak performance for innovative results, thereby short-changing the ultimate goal of the ERDA funding.

A GOVERNMENT PATENT POLICY THAT MAKES SENSE

If we are more interested in commercial utilization of government/contractor inventions then the personal equities of who should get exclusive rights; and Congress is more interested, then the logical policy to establish is one that will encourage the companies with energy expertise to deal with ERDA and commercialize the discoveries stemming from ERDA contracts after their completion. The positive incentive needed for such encouragement cannot be supplied merely by holding out a lot of money for R&D and demonstration projects involving nonexclusive rights.

The government should allow contractors to have exclusive rights, with the government retaining a nonexclusive grant without the right to sublicense, as long as the contractor is diligent in expending money and effort to convert the work product of the ERDA research, development or demonstration project into a commercially feasible energy solution. One practical way of implementing this approach is described briefly below/ in concept only

Large corporate contractors would be able to exercise an option to receive exclusive rights on discoveries for three years after actual reduction to practice or / contract completion, whichever occurs first.
Within / said three year period, they are expected to introduce these energy breakthroughs to the marketplace. They would be required to give biannual reports showing their progress and the fact that they have not abandoned their diligent efforts. If there is no market introduction at the end of three years, the government could exercise its option to make the contractor's exclusive license nonexclusive and give one other nonexclusive license to another promising candidate, who, in turn, would be given three years to introduce the energy device

tection;however, the small companies will not be able to risk their or their backer's capital for commercialization of any breakthroughs on a nonexclusive basis.

But does it really matter whether these government contractors commercialize the discoveries they made during performance of their government contracts? The government has obtained title and ownership to these discoveries and can license them to other firms. Unfortunately, other firms and they do not even have the original expertise that the government contractors did/will not have sufficient incentive to commercially introduce the discoveries to the marketplace because of immediate competition from other companies asking the ERDA for a nonexclusive license. This is the reason why commercial/utilization of patents in private industry is five to ten times that of government patents and the reason why 7/8 of government patents are never licensed at all.

If the firm bidding on the bioconversion contract has already conducted its own R&D in this area of technology, it risks having its existing patents and trade secrets licensed to its competitors if an irrevocable waiver is not obtained and such rights are required to practice the work product developed during the contract. For many established companies in the energy field, the revenues received for a government contract are only a fraction of the expected commercial benefits to be derived from background patented discoveries and trade secrets. The venture capital decision is a gamble at best, based upon certain facts from which objective conclusions can be reached, but in the end a subjective judgment. A fundamental factor in the psychology of such a risky decision is first considering the critical variables, those that by themselves can spell failure for the venture. Nonexclusive licensing would be just this type of psychological or irrational, if you will, factor that would make venture capitalists think twice about putting money into applied research and development. The average company or inventor does not care that exclusive licenses are sometimes granted and are not revoked. It does not know that,chances are, its background rights will not be compulsory licensed. It only cares about its own particular circumstances, its innovation, its sweat, its risk and its money.

ment contractor to invest his private funds in bringing the results of energy R&D for ERDA to the marketplace.

What is the ideal combination of incentives to motivate the commercial application of ERDA within the energy industry? The basic motivations for budgeting R&D for ventures in any industry are well established; the prime incentive being a satisfactory ROI.

If the potential rate of return on investment is high enough, the entrepreneur will take a reasonable gamble with his or his backer's capital. The key to decision-making here is what is a reasonable gamble. The risk that ROI objectives may not be reached is dependent on several fundamental factors, the most important, in the mind of the venture capitalist, being the degree of competition.

Now we get into the venture capitalists' mentality. Protection against competition serves as the insurance that the venturer and his capital sources will recoup the investment together with a reasonable profit should the research and development prove fruitful. Without some form of protection, competitors would immediately copy the innovation after technical feasibility and initial marketing success has been shown by the entrepreneur. This would put the venturer at a financial disadvantage since the competitors would be able to underprice the innovator, who must charge enough to recoup his substantial pioneering investment in both the laboratory and the marketplace, in addition to his fixed manufacturing cost.

Competition in America is normally minimized or at least controlled by the new product venturer through the use of a number of well known techniques. Most of these techniques are only available to the giant corporations that have well-financed and agressive R&D, marketing and distribution capabilities. It is unfortunate that entrepreneurs, small businesses and medium sized companies have less options in dealing with com-

THE CRISIS IN COMMERCIALIZING GOVERNMENT FUNDED R&D

November 19, 1975

Testimony by Philip Sperber

In its future report to the Congress on the patent-waiver clause, we hope that ERDA will be able to make a strong case for providing title to the universities to permit a realistic transfer of technology for the public benefit. It is my understanding that a number of well-qualified university patent administrators will be in attendance at the hearings next week. Since many, if not all of these men were program participants at our conference, I am certain that they will state the case well for the university research community in the U. S.

Very sincerely,

Allen C. Moore
Director

ns

cc: Norman Latker, DHEW

the best way of insuring full commercialization and thus making the result available to the public. Recent experiences have shown that when the Government takes title to patents, it is difficult to encourage commercialization. We are confident that ERDA's proposed patent policy, properly implemented, will work to the fullest benefit of the public.

Very truly yours,

K. W. McHenry

PATENT REWARDS—5

Patent Policy in Government Contracts

Present procedures may work to the detriment of the Government by scaring off the qualified company which can perform the work but doesn't want to lose possible commercial rights to its knowhow.

A. L. Conn, American Oil Co., Whiting, Ind.

FOR THE PAST FOUR YEARS MY JOB WITH THE Research and Development Department of American Oil Co. has been Director of Government Contracts. In this capacity, I have come face to face with a major problem: after finding areas in the government where money is available for contracts and determining where my company's particular expertise can be useful to the government,

mandatory licensing of energy-related patents is not needed to carry out the purposes of the Federal Nonnuclear Energy Research and Development Act of 1974.

Sincerely,

Sheldon Elliot Steinbach
Staff Counsel

Thus, it is clear that Congress intended that those educational institutions having technology transfer capability which desire to maintain patent rights in inventions developed under ERDA contracts should be permitted to retain such rights so that they may exercise their abilities in transferring technology.

In Vol. 40, No. 73 of the Federal Register issued on Tuesday, April 15, 1975, ERDA added a new appendix to 41 CFR Part 9 - 9 relating to Patents and Copyrights. The following statement appears in the section relating to waivers--

> "d. Approval of University technology transfer program. Paragraph (11) of subsection 9(d) of the Federal Nonnuclear Energy R&D Act provides that in waiver determinations, consideration should be given to the extent to which universities have technology transfer capabilities and programs approved by the Administrator. Pending the development of an approval process within ERDA for university capabilities and programs, consideration may be given to the approval of such programs of a university [sic] approval by another agency will not meet the statutory requirement of approval by the Administrator, approval by other agencies will be relevant information to be considered by the Administrator."

In spite of the express language of the Bill, the interpretation in the Conference Report and the statement quoted above from the Federal Register, ERDA now proposes a new policy and procedure relating to patents, data and copyrights. Its proposed procedure does not implement section (d)(11) of the Act, although the proposed policy notes the fact that nonprofit educational institutions with technology transfer capabilities may have their programs approved by the Administrator.

It appears from the proposed procedure that the Administrator intends 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. This is totally inconsistent with the intent of the Congress to give special treatment to nonprofit educational institutions, in recognition of the fact that they cannot meet many of the other criteria.

A solution to this problem has been proposed by 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 July 1975 this Subcommittee issued a Report stating that--

A. Creation of university technology transfer capabilities should be encouraged.

B. Agreements permitting qualified universities to retain title to inventions would create an incentive to develop university technology transfer capabilities.

Is there any comment that any member of the panel wishes to make?

Well, with that, I want to thank everyone here, members of the task force.

The public hearing is adjourned.

(Whereupon, at 5:35, the hearing was adjourned.)

I think that is a right determination. I am no sure I am responding to your question, but what we are saying to you is that in our view, exclusivity in the contractor is a desirable thing in order to obtain exploitation of worthwhile inventions.

MR. GOODWIN: I am really asking the question whether the ERDA patent policy doesn't accomplish in substance the objective that you have, disregarding the fact it may put an administrative burden upon the contractor to obtain this kind of exclusivity and, perhaps, technically reduce his enforcement capabilities.

MR. MCKIE: I am not sure I am really competent to answer your question. I am not that acquainted with the details of operation of ERDA patent policy so I could actually answer that question.

MR. GOODWIN: Thank you.

MR. POTEAT: I would like to address a question toward what kind of royalties under your system, where you say the exclusive rights reside with the contractor -- Have you given thought to where ERDA spends money, inventions are made, title rests with the contractor, in the area of energy, what kind of royalties would be extracted from the owners of the patent at that time?

MR. MCKIE: I think I am missing your question, sir.

MR. POTEAT: When you gave us what you felt was the best policy, it was one in which exclusive rights were residing in the contractor with title, with the right to obtain foreign patents and the right to license others. You did not go on to elaborate or discuss the royalties that may be exacted from the licensing of others.

MR. MCKIE: No, I did not; and I think that is best left to the normal operation of the marketplace. Royalty rates vary from case to case, depending upon what is felt by the parties and what is negotiated by the parties as a reasonable amount of the royalty.

One of the difficulties in trying to set any kind of an arbitrary rate, is that it will not match any situation, let alone all.

the right to grant licenses to others and the right to obtain foreign patents. Appropriate safeguards against non-use could be provided by march-in rights or a requirement to license other after expiration of a reasonable period of exclusivity or lack of interest of the contractor in exploiting the invention.

With the title in the contractor, administrative burdens of both the government and the contractor will be minimized. Moreover, independence in enforcement of any patent rights will be assured.

It is our understanding that a particular matter of study for this group is the question of what is called mandatory licensing. APLA feels very strongly that any provision for mandatory licensing is contrary to the public interest because it diminishes the incentive to invest and the incentive to exploit inventions. If the inventor or his assignee is faced with the possibility that a license to use his invention can be forced from him by government fiat, he will have considerably less incentive to make and publish inventions through the patent system. Moreover, his incentive to invest the time and money necessary to exploit his invention commercially will be diminished by the possiblity that someone not having invested that time and money will be able to copy the product of his investment by obtaining a mandatory license. The provision for a right to exclude provided by a patent is a part of a pragmatic approach to incentive to invent and incentive to exploit inventions. These incentives should be maximized in the public interest. They should not be emasculated by mandatory licensing, or by governmental ownership of patent rights.

As I have said, APLA is most grateful for the opportunity to appear here and present its views. Thank you.

MR. DENNY: Thank you, Mr. McKie.

You make reference to divesting the contractor of his prior background data rights, patent rights, and the contractor losing his background patent and data rights. Requesting the contractor to license both of those for reasonable royalties only when it is necessary in order to practice the results of the contract that ERDA was attempting to get, does that fall within your definition of divesting or losing?

Since it may be of interest to you to assist in interpretation of my remarks, I will state that I am in the private practice of patent law in Washington, D. C., and have been for nearly 25 years, in various firms. I have been active in the American Patent Law Association for nearly all of that time, having served as chairman of several committees, and as an officer or board of managers member for some nine years.

APLA is governed by a board of managers consisting of 22 lawyers from various areas of the United States. Our board includes corporate and private counsel, as well as one law professor.

We are most appreciative of the opportunity to testify today on a subject of extreme importance to our association and, we think, to this country

The basis of my testimony will be a statement of general principles which was adopted by the board of managers of APLA at its regular meeting yesterday, November 18. I will not seek to go into detail about legislation, current or proposed, and certainly not about rules and regulations. My testimony will deal with policy which we think should be adopted for ERDA's efforts, in the national interest.

A fundamental basis for our position, and what we think should be ERDA's position, is that the patent incentive should be employed as an important element of the efforts to solve our current energy problems. Throughout the history of this country the opportunity to obtain a patent has furnished an important incentive to development of new inventions. This incentive should be preserved in respect of inventions within ERDA's field of particular interest.

The opportunity to patent not only encourages invention but also encourages exploitation of inventions, once made. It is notorious that most inventions require a great deal of work and time before they can be successfully exploited on the commercial market. Without the right to exclude granted by a patent, one seeking to exploit an invention would be deterred from making the necessary investment in commercial development of that invention, because the copyist would be able to come in, without the investment of the original developer, and take over part or all of the developer's market.

technology to the marketplace. Would this three years be a good number for all technologies, or would it have to be negotiated on a field-by-field or area-by-area basis?

MR. SPERBER: Later on in my testimony, I was going to also tell you that for small business, I would recommend an initial period of five years for them to introduce the R and D technology to the marketplace. And if they are successful, give them another five years of an exclusive license to satisfy the nation's needs for the energy solution.

I have picked three years for large corporations and five years for small business as arbitrary terms to get them to diligently work towards those deadlines to introduce the technology to the marketplace.

I am talking a concept now. Surely, in the ERDA provisions there could be a clause providing for an exception at the discretion of ERDA to extend the three-year period if they felt that the former contractor had been making an extremely diligent effort, but because of the technology, he has not been able to introduce to the marketplace the technology yet.

MR. WEINHOLD: I guess I have trouble seeing the relevance of a three-year period with some of the technology that takes seven or eight years to build the first plant, or something like that.

MR. SPERBER: All right. Now you are talking about -- There is a distinction between prototype production right in the laboratory of the R and D firm, and gearing up for full-scale production and perhaps the construction of plant facilities for full-scale production.

Introducing the invention to the marketplace is, in my view, still in the prototype phase. Three years is enough to show that they have made something into a commercial feasible thing that can be introduced to the marketplace.

Full-scale production; they would have six years for it: The second three-year period to satisy the needs of the marketplace.

Now, this is just the concept. Maybe the terms are too short. I don't know.

personal equities of who should get exclusive rights -- And I know Congress is more interested in commercial utilization -- then the logical policy to establish is one that will encourage the companies with energy expertise to deal with ERDA and commercialize the discoveries stemming from ERDA contracts after their completion.

The positive incentive needed for such encouragement can't be supplied merely by holding out a lot of money for R and D demonstration projects involving non-exclusive rights. The government should allow contractors to have exclusive rights with the government retaining a nonexclusive grant -- without the right to sublicense, as long as the contractor is diligent in expending money and effort to convert the work product of the ERDA research, development or demonstration project into a commercially feasible energy solution.

One practical way of implementing this approach will now be described briefly in conceptual form.

I am not going to get into details. Large corporate contractors would be able to exercise an option at the time of either bidding on the contract or at the time of identifying an invention or discovery during the contract, an option to have exclusive rights on such discoveries for three years after actual reduction to practice, by which time they are expected to introduce these energy breakthroughs to the marketplace.

They would be required to give bi-annual reports showing their progress and the fact that they have not abandoned their diligent efforts. If there is no market introduction at the end of three years time while they have had this exclusive right in the discovery, the government could then exercise its option to make the contractors' exclusive license nonexclusive and give one other nonexclusive license to another promising candidate who, in turn, would be given three years to introduce the energy discovery to the marketplace before any other nonexclusive licenses are granted by the government.

In this manner, each licensee would be assured a limited period of time in which competition could be limited to a small group of previous nonexclusive licensees who have failed to employ enough diligent effort to effect commercialization of the discovery.

competition from other companies asking ERDA for a non-exclusive license.

This is the reason why commercial utilization of patents in private industry is five to ten times that of government patents, and the reason why 7/8 of government patents are never licensed at all. If the firm bidding on the bio-conversion contract has already conducted its own R and D in this area of technology, it risks having its existing patents and trade secrets licensed to its competitors if an irrevocable waiver is not obtained and the background rights are required to practice the work product developed during the contract.

For many established companies in the energy field the revenues received for a government contract are only a fraction of the expected commercial benefits to be derived from background patents, discoveries and trade secrets. The venture capital decision is a gamble at best, based upon certain facts from which objective conclusions can be reached, but in the end, a subjective judgment. A fundamental factor in this risky decision is first studying the variables. Nonexclusive licensing would be just this type of psychological or irrational, if you will, factor that would make venture capitalists think twice about putting money into applied R and D.

The average company or inventor does not care that exclusive licenses are sometimes granted and not revoked. The average company does not know that its background rights will not be compulsorily licensed. It only cares about its own particular circumstances, its innovation, its sweat, its risk, and its money. Thus, the mere presence of a nonexclusive licensing policy by ERDA, regardless of how infrequently used it may be, will become the critical factor in the minds of many venture capitalists that will cause a high risk venture evolving from an ERDA contract, to become an unjustified gamble having too many unknowns that could prevent not merely a return on the contractor's investment, but also return of the investment itself.

Conversely, in the presence of exclusive licensing, financial backers and top management of government contractors will continue the confidence they have exercised in the past in the energy field while they were funding their own private research because of their unaltered expectation of meeting their goals once they have decided to take the risk of technical, market or patent failure.

venture capitalist being the degree of competition. Protection against competition serves as the insurance that the venturer and his capital sources will recoup the investment, together with a reasonable profit, should the R and D prove fruitful. Without some form of protection, competitors would immediately copy the invention after initial marketing success has been shown by the entrepreneur. This would put him at a financial disadvantage since competitors could under-price the inventor who must charge enough to recoup his investment in both the laboratory and marketplace in addition to his fixed manufacturing costs.

Competition in America is normally minimized or at least controlled by the new product venturer by the use of a number of well-known techniques, most of which are only available to the giant corporations that have well financed aggressive R and D marketing and distribution capabilities. It is unfortunate that entrepreneurs, small businesses, and medium-sized companies have less options in dealing with competition because our nation must rely more heavily on them than the giants for our energy solutions.

It is a fact that more than 60 percent of the major innovations of the 20th century are based on inventions of individuals and small business. It, therefore, becomes vital that small business in America be given other forms of protection against competition if our country is to have an adequate supply of energy innovators and financial backers willing to gamble on profits from energy technology.

The best form of protection for small business is patent protection, the limited, exclusive incentive. Trade secret protection comes in as close second.

How will the proposed policies and procedures of ERDA on patents and data affect commercialization of energy R and D? Well, in a nutshell, the proposed ERDA policy is that the contractor will normally get a nonexclusive license, the government gets full title and ownership, and the government will have the right to license third parties on the patent and trade secret rights conceived and reduced to practice under and during the course of the contract, as well as any background rights necessary for practicing the work product developed during the contract.

The contractor has the right to apply for a waiver to obtain a revocable exclusive license, provided it can persuade ERDA that numerous conditions involving the

[26]322 U.S. 471, 484 (1944).

[27]323 U.S. 386, 415, 64 USPQ 18 (1945).

[28]383 U.S. 1, 9 (1966).

[29]210 U.S. 405, 1908 D.C. 594 Feb. 15, 1974 492 F.2d 1317 182 USPQ 1 (2nd Cir. 1974).

[30]Supra., n. 17.

[31]Supra., notes 11-14.

[32]The Supreme Court has continuously held that a patented invention is exclusively owned by the patentee, who may use or not use it as he chooses. As with any property owner, if he wishes to license or sell his property, it is his right to use his exclusi ownership (or threat of injunction) as negotiating leverage to strike the best deal he can, based upon the infringer's cost of designing around the patent and the relative advantages and disadvantages of conventional products or a redesigned non-infringing product. As already mentioned, in connection with n. 15, the Second Circuit held that equity demanded that the patentee be forced to give away his exclusive ownership because the patent is not property that the patentee can use to enhance his negotiating stance.

[33]President Nixon's Science and Technology Message to Congress, March 16, 1972

[34]Supra., notes 8-10.

[7]Atomic Energy Act, 42 USC 2183; Plant Variety Protection Act, 7 USC 2404; Clean Air Act of 1970, 42 USC 1857 (h)(6); Helium Act, 50 USC 167(b); Tennessee Valley Act, 16 USC 831(r); Whitaker, "Compulsory Licensing - Another Nail in the Coffin" II APLAQJ 159-162, Summer, 1974.

[8]Thatcher v. Mayor of Baltimore, 219 F.909 (D.Maryland, 1915); McCreary Engineering Co. v. Massachusetts Fan Co., 180F. 115 (D.Mass., 1910); Ballard v. City of Pittsburg, 12F. 783 (W.D. Penn. 1882); Bliss v. Brooklyn, 3 Fed. Cas., No. 1,544 (E.D. N.Y.1871)

[9] ——→ 69 F.2d 577, 593 (7th Cir. 1934).

[10] ——→ 146 F.2d 941, 945 (9th Cir. 1945).

[11]14F. 914, 915 (CC. D.Mass. 1883).

[12]27F. 204 (CC. N.D. Ill. 1886).

[13]166F. 555 D. Mass. 1909.

[14]200F.Supp. 656,647, 161 USPQ 527, 530(N.D. Ill. 1969).

[15]492F.2d 1317, 182 USPQ 1 (2d Cir. 1974).

[16]Goldsmith, "The Case for Restricted Compulsory Licensing" II APLAQJ 146, 150, 151, Summer, 1974.

[1]The decision to employ venture capital by an outside financial backer or by top management, as the case may be, and to do so profitably depends primarily on the extent that the following conditions exist: (1) an existing and unfulfilled need for a product or service in the market place; (2) an innovation in the form of an idea, working model, rough prototype, or finished item or system that has a high probability of technical feasibility for satisfying the unfulfilled market need at a price that is not cost prohibitive; and (3) the means to appropriately price the product or service so that it will be desired by the market while at the same time maintaining a suitable profit margin before taxes, a minimum satisfactory ROI (return on investment) throughout the venture life cycle a maximum satisfactory payback duration, and a minimum satisfactory discounted cash value of the total pre-tax net profits to be derived from the business venture over an adequate life cycle of a satisfactory number of years.

[2]Whether profit goals are achieved depends upon: (1) R&D, start-up, and operating expenses for successful planning, designing, experimenting, building, testing, prototype production of, test marketing, and finally full scale manufacture and sale of the product or service; (2) the optimum price/unit that the product or service will be bought for over the closest substitute on the market resulting in a volume of sales at such price level that will produce the greatest net earnings; and (3) existing or potential competition.

[3]The most common methods employed to keep competition down are: (1) a highly skillful, aggressive, and successful, but not predatory, marketing strategy; (2) a high cost of entry of the selected product/market area thereby eliminating all potential competitors not having or capable of obtaining equally large financial resources and necessary facilities and personnel for the venture; (3) a short life cycle of the venture selected for investment due to rapid product obsolescence, quick saturation of the target market,

CONCLUSION: AMERICAN INGENUITY IS OUR ONLY SHOT AT ENERGY SURVIVAL --- IT NEEDS OUR SUPPORT

There is a highly delicate relationship between the patent incentive and the cautious, slow-moving gears of high-risk venture capital financing. The right to exclude for a limited duration is the impetus for R&D competition, discouragement of suppression and low prices in the energy field. The mere appearance or taint of an emasculated patent incentive will upset this delicate balance and result in technological stagnation, industrial secrecy and suppression, and high prices. It is significant here to point out a former president's conviction that "The mere act of scientific discovery alone is not enough. Even the most important breakthrough will have little impact on our lives unless it is put to use --- and putting an idea to use is a far more complex problem than has often been appreciated . . . . Excessive regulation, inadequate incentives and other barriers to innovation have worked to discourage and even to impede the entrepreneural spirit."[33]

If some entrepreneur in the next few years stumbles upon a form of energy as new to us as atomic energy was in the Past century, patents the breakthrough, and suppresses it for whatever reasons he may have, there is no cause for alarm. The courts have shown their willingness in the past to refuse injunctions against infringers where the public welfare is at stake.[34] Judicially sanctioned compulsory licensing pursuant the police powers of the nation will ensure that the nation's needs for the new form of energy are adequately fulfilled long before America is brought to its knees in the Middle East. On the other hand, enactment of a compulsory licensing statute may very well be the subtle negative incentive that will prevent tomorrow's entrepreneur from discovering that new form of energy. Who knows? Whether we have compulsory licensing legislation could mean the difference between war and peace at some point in time. Let's not worry about American inventors suppressing their patented solutions to our energy problems. The first and most important concern is to discover those solutions and soon!

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rise to whatever point the market could bring. These large companies would not fear that high profits from high prices would bring in new entrants because big companies could again use their large financial resources to price the new entrants out of the market.

IS COMPULSORY LICENSING SANCTIONED BY OUR CONSTITUTION?

This paper has just treated the economic arguments as to why compulsory licensing legislation, no matter how well drafted and how rarely enforced, will inevitably be abused in one way or another and will lead to a reduction in energy R&D financing, the opposite result desired by Congress. But, how does the judiciary view compulsory licensing legislation and what is its interpretation of what was intended by our Founding Fathers?

First, let's take a look at the issues involved. Section 8 of Article I of the United States Constitution provides that "the Congress shall have power.... To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The men who drafted this provision of the Constitution were solely interested in promoting the progress of science and useful arts through dissemination of technological progress with the incentive of rewards to inventors, without strings attached other than the mandate of public disclosure of the invention.[24]

This constitutional provision does not require inventors to use their discoveries in the marketplace for the benefit of the public. If the draftsmen and framers of the Constitution had any such intent, would not they have changed the provision to " the exclusive right to use their respective writings and discoveries"? The draftsmen did not want to qualify or restrict the reward to inventors with the requirement of use because they were interested in a strong incentive for the sole purpose of disseminating technology upon which further progress could be made for the general benefit of the country's economy The reason why the framers of the Constitution did not restrict the reward to the condition of use is that a strong incentive is needed to convince the inventor to disclose his secret for once it is disclosed, the discovery is no longer owned by the inventor unless he has an exclusive right thereto for a limited period of time. This exclusive right continues the inventor's ownership in the property, which, as the exclusive owner for a limited period of time, he may or may not commercially exploit.

because businesses will rely on trade secrecy as opposed to patent protection for excluding competition. Without patent protection, there is no public disclosure, and it becomes a simple matter to put a new product development under wraps with neither the government nor competition the wiser (since no patent will issue describing the breakthrough). The reason why a company would be more likely to suppress an invention that is kept as a trade secret is clear enough; fear that the secret will be cracked once the product is introduced to the market and that there will be immediate copying and stiff price competition before the innovator has had a chance to recoup its investment. In this situation, extending the life cycle of the existing product being sold by the innovator becomes an attractive alternative.

WILL COMPULSORY LICENSING REDUCE OR INCREASE THE COST OF ENERGY SOLUTIONS?

Capitalism and the patent incentive work hand in hand to increase competitic and lower prices, contrary to the beliefs of many compulsory licensing advocates. Let's get into the nitty gritty of the real world, for reliance on sweeping generalizations will not convince anyone of their truth.

First, although the new product may be superior, there is always a breakeven point where the high price of a new product will still make the old inefficient one more desirable to stick with or purchase. Thus, the new product or energy facility must be reasonably priced in relation to the existing methods of satisfying the market need. This is especially true in the energy field where, unlike a consumer-oriented market, professionals are too shrewd to make capital expenditures that are excessively high in relation to cost-benefits of conventional apparatus.

Second, a business venture that reaps an extremely high profit derived from a high price coupled with a potentially large market demand will encourage potential competitors to divert their R&D funds to the area of the innovation in the hope of coming up with new technical approaches not infringing the patent rights. Although the pioneering company may have spent five / to / ten years in research, development, and preparation for production and commercial introduction of a synthetic fuel, it is amazing how fast this lead time can be drastically reduced by a dozen other companies, each spending perhaps as much or more money than the innovator in a crash program that has the benefit of starting

failure. President Kennedy summed it up well when he stated that the incentives and protection available in the patent system that are exclusively afforded to the owner of a patent are the bulwark upon which he can risk existing capital and attract new capital for development of markets for products, marketable products, the construction of plants, the employment of labor, and increasing the gross national product.[22]

WILL COMPULSORY LICENSING RETARD OR PROMOTE SUPPRESSION?

In a free market environment where the patent incentive is intact, the competitors in any given industry or technology will generally invest in a certain amount of research and development in order to improve existing products and innovate new products to take the place of the old ones before the competition / makes . the old products or improvements of the old products obsolete or undesirable in the eyes of the marketplace. Given the fast pace of technology today and the accelerated cost of R&D per new product improvement or new product venture, the company that has made a breakthrough cannot afford to delay commercialization of the innovation merely because it may make an existing product obsolete or undesirable to market.

Businesses today conspicuously avoid the carriage industry syndrome. At the turn of the century the horse-drawn carriage industry belittled and ignored the entrepreneurs of the times who were experimenting with automobiles. Carriages were big business and the profitable firms in that era were not about to promote anything that would replace carriages as the primary mode of transportation. Within a few years, the carriage industry vanished from the face of this country along with the carriage firms that refused to face reality and the inevitable obsolescence of their products. Businesses today strive to be able to bring out the products of tomorrow that are better than the products of yesterday, obsolescence being the very reason, because they know that if they don't bring out a better product, their competitors will. If there should be a conspiracy between competitors to suppress, then this is a job for the antitrust laws, not compulsory licensing (which would hurt nonconspirators and the nation's energy goals as a whole).

The venture capitalist must meet his ROI, payback and product life cycle goals. The time between product development and market acceptance of a new breakthrough takes years for the average innovation and, as time passes, increases more and more due

greater funds for financing expansion into the larger volume market sectors that will subsequently be hit with tempting prices lowered from initial introduction price.

Since the compulsory licensing proposals all, in one form or another, address themselves to the situation where the public need for the invention is not reasonably satisfied due to high prices that cannot be afforded by most that have the need in the first few years, it is almost inevitable that the innovator's need to recoup his investment as fast as possible in the early years will clash with the risk that the innovation will be compulsory licensed to competitors. This situation becomes one more barrier facing the venture capitalist in the energy field should compulsory licensing legislation be enacted. Money will either flow to non-energy ventures or things will be done in secrecy without reliance on patent protection.

In a Hart-type compulsory licensing statute, businesses, small and large, face additional negative incentives. Not only would a patented energy solution be subject to compulsory licensing, but also the know-how necessary to commercially work the patented invention, notwithstanding that it might comprise trade secrets that have significant value to other aspects of the innovator's business.

If the statute does not specifically require compensation for the capital expended on research, development, market introduction and customer education, the award of some standard nominal royalty such as 5% of the sales price of each facility installation or equipment sale is almost a certainty. The innvoator's venture will have been a failure because its payback, profit, and ROI goals will not be reached.

A further disadvantage of a compulsory licensing statute in the energy field is that no matter how well drafted and how good-intentioned the statute is, because of its inherent nature, there will be abuse. The mere fact that there is a compulsory licensing statute in the energy field will encourage its use whenever expedient or convenient Its existence will also make it seem like the new and approved way of avoiding infringement in the eyes of the energy industry. Seeking a compulsory license could become the thing to do and could promote a flurry of litigation as opposed to settlement by arm's length negotiation as has been done up to now.

However, the innovator may not use all of the patented improvements in fulfilling all of the market needs that could be fulfilled thereby. The innovator may also decide that the market is not yet ready to appreciate or utilize the discovered breakthrough for at least another 5 years.

If compulsory licensing legislation exists, such improvements and breakthroug may wind up in the hands of competitors after being patented. The risk of this happening would be a negative incentive to minimize product improvement and research activities for developing second and third generation energy solutions or to keep such activities secret without reliance on patent protection.

The fallacy that compulsory licensing legislation can do very litte harm to anyone other than those at whom the statute is aimed can be illustrated by looking at the circumstances of the small businessman, also.

The compulsory licensing proposals that have been popular to date generally allow the innovator /three years after patent issuance to commercialize the invention prior to subjecting it to compulsory licensing. Many entrepreneurs and small businesses have the capability of making significant contributions in solving our energy problems, but they will not be able to meet market demand for their discoveries right away because of limited funds and production resources. It is not uncommon for a half dozen years to pass by while capital is attracted to finish development and expand the facilities and then finish all of the many /things which must be attended to prior to full-scale production and distribution. The money men know that if they invest in a high risk energy venture, they must provide sufficient capital to carry the project for a number of years. If a compulsory licensing statute would permit others to receive a license on the energy solution /three years after it was patented because market demand is not being adequately satisfied by the business venture, venture capital and/the receptiveness of small business management to energy ventures will surely dry up.

Even if the small or medium sized business does have available the resources for rapidly expanding to meet the requirements of the national market, the pricing facts of life in industry dictate that prices be set high on new products and equipment. There are several reasons for this.

forth in detail by Tom Arnold and W. Brown Morton, Jr. with in-depth reasoning for specific provisions that would prevent abuse of the compulsory licensing law.[18] For instance, legislation would have the safeguard that the patentee has not been able to reasonably satisfy the public need for the invention for at least a /three year period and the invention or discovery patented must be of primary importance in a general field of endeavor.

HOW WILL ENACTMENT OF COMPULSORY LICENSING REALLY AFFECT ENERGY R&D?

The basic premise of the /proponents, who advocate compulsory licensing in order to weed out suppression and who feel that such legislation is a logical and practical extension of the case law and the end purpose of the Constitution, is that small and large businesses alike have nothing to worry about as long as they do not try to suppress an energy innovation. Therefore, there is really no harm done by having the compulsory licensing law and something definitely to be gained if suppression does or will exist in the energy R&D field.

Let's take a look at the fallacy of this basic premise of compulsory licensing advocates, using the large corporate R&D laboratory as an example.

It is standard practice for the research administrator to investigate a number of different technical approaches in solving a particular problem or developing a new product for the task to be performed. It is common to see several parallel inventions evolved during the research and development process. At some point, some of the approaches will be abandoned and only the couple that have the best chance of satisfying the market need at a profit will be test marketed. Finally, a single prototype will be selected for full-scale production and market introduction. Eventually even this product will be improved after field reports are received on market preferences and technical bugs during the first year or two.

During this process of research, development and commercialization, patent applications are normally filed on some of the inventive approaches that are eventually abandoned and definitely on the best and second best candidates for market introduction. Afterwards, one or more patent applications will be filed on the changes made to improve

The proponents of compulsory licensing appear to appreciate the value of the patent incentive in promoting R&D and new product introduction. They know new energy ventures won't be financed without some form of protection against copying and near term competition, and they feel that patent protection is preferred over the alternative of industrial secrecy.

In fact, compulsory licensing advocates emphasize that removing the right to exclude would only be in the most infrequent situations, when warranted by the economic evils of suppression or inadequate supply of an energy innovation very much needed by the public.[6] To support this view, the track record and experiences with other compulsory licensing laws both abroad and in this country are cited.[7]

Various legal positions have been set forth to lend credibility and a purpose to the logic for compulsory licensing. First, there are cases going all the way back to the 1800's that are precedents for compulsory licensing where the public health or welfare is at stake.[8] In City of Milwaukee v. Activated Sludge, Inc., the court held that if "the injunction ordered by the trial court is made permanent in this case, it would close the sewage plant, leaving the entire community without any means for disposal of raw sewage other than running it into Lake Michigan, thereby polluting its waters and endangering the health and lives of that and other adjoining communities."[9] Likewise, in Vitamin Technologists v. Wisconsin Alumni Research Foundation, the court refused to enforce a patent because "it is the poor people suffering with rickets who constitute the principal market for Appellee's monopolized processes and products."[10] At the present time, U.S. dependence on the Arab nations and others in the world for fulfilling our energy needs is a threat to the nation's welfare and defense. It is no longer practical to rely on courts not to grant injunctions on a case-by-case basis for the immediate and widespread use of energy solutions.

Second, there are those who also feel that legislation is needed to prevent the courts from going overboard in emasculating the patent grant. In Hoe v. Boston Daily Advertiser Corp., the court concluded that granting an injunction against infringement would not be of any advantage to the plaintiffs, "except to coerce a settlement."[11]

THE QUICKEST WAY TO ENERGY INDEPENDENCE

The end product desired by Congress is readily available low-priced solutions to our energy problems. This end result is attainable only after commercialization of the most promising of many different technological approaches and innovations in the energy field. The means by which this end result can be achieved in the fastest possible manner is none other than good old-fashioned research and development competition among firms within the energy industry. If hundreds of small businesses and dozens of major corporations are all enthusiastically trying to develop their own technological solutions to our energy goals, with each of said firms improving upon the innovations and efforts of others and hoping to be the first to present the public or ERDA with a commercially feasible breakthrough, then this is the ideal atmosphere for expediting energy independence

What is the ideal combination of incentives to motivate R&D competition within the energy industry? The basic motivations for budgeting R&D for ventures in any industry are well established; the prime incentive being a satisfactory ROI.[1]

If the potential rate of return on investment is high enough, the entrepreneur will take a reasonable gamble with his or his backer's capital. The key to decision-making here is what is a reasonable gamble. The risk that ROI objectives may not be reached is dependent on three fundamental factors, the most important, in the mind of the venture capitalist, being the degree of competition.[2]

Now we get into the venture capitalists' mentality. Protection against competition serves as the insurance that the venturer and his capital sources will recoup the investment together with a reasonable profit should the research and development prove fruitful. Without some form of protection, competitors would immediately copy the innovation after technical feasibility and initial marketing success has been shown by the entrepreneur. This would put the venturer at a financial disadvantage since the competitors would be able to underprice the innovator, who must charge enough to recoup his substantial pioneering investment in both the laboratory and the marketplace, in addition to his fixed manufacturing cost.

My testimony does not represent the official position of any organization of which I am a member. These are my personal views only, based upon my previous research, experience and responsibilities in industry and the patent profession.

Respectfully submitted,

Philip Sperber

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PS:MWC
enc.

I think that is one reason why we have a lot of inventions where title was retained by the contractor, where little was done.

I was just wondering whether there was the feeling that because ERDA was in a more direct commercial area, or use area, that this would not occur if we adopted a policy such as this?

MR. HUMPHRIE: There may be some companies where the patent attorney by himself makes the determination whether or not to file.

If he is doing his job well, of course, he makes the determination from overall benefit as an asset to the company, rather than is it a technological advance.

In writing our policy whether or not to file, we have a committee who helps us make that determination.

I would point out one additional thing, too, Leonard. If you have an invention coming out of an R and D program, it may be a few years ahead of the commercialization. So there are those cases or those exceptions, where you feel that due to the early nature of the invention that you can't really establish right now its commercial value.

You, nevertheless, would go ahead and file it. But you still would have an eye out to those inventions which do provide a definite business asset and value to the company in the way of commercialization.

MR. RAWICZ: Thank you.

Any other questions?

Thank you.

MR. TORMEY: Thank you very much.

MR. HUMPHRIES: Thank you.

MR. RAWICZ: Next on our agenda, we have Mr. Gratch, Director of Chemical Sciences Laboratory of Ford Motor Company.

MR. GRATCH: Good morning.

the invention and just sits on it. I think the Act should have clear words to protect the public interest against such a contractor.

That is what I meant by protecting the other rights of the government. I don't think we, as a country, should just lie back and, after we have selected a contractor and then he does not proceed vigorously to pursue inventions, pursue patents, pursue licensing, take it all away.

If you yield the title to him without some other provisions to protect us from that, then I think it would be a bad act. Therefore, there should be words in there to permit such action by the government.

MR. RAWICZ: Any other questions?

I can ask mine.

When we studied use of inventions, we established a low-use rate of inventions from government research. While I was at NASA, we used to ask contractors, basically aerospace industry, to report on the use of the inventions.

We found that while the percentage used was higher, a good number of the corporations we contacted that had title to the patent hardly recognized the patent. They got it and filed it and weren't using it.

The problem I have in the suggestion that industry retain title, subject to whatever rights the government would have, is that historically we have seen very little use of these inventions when industry does retain title and very little use when the government retains title.

So I guess the problem I have is, why would that be a solution, letting industry retain title when historically no use occurs when they do?

MR. TORMEY: Lee is anxious to answer that question, sir.

MR. HUMPHRIE: I think we should draw a comparison here, Leonard.

Where is the use most likely to be made?

What is your corporation's normal policy on licensing your technology outside, and, number two, specifically the clauses suggested in the regulations recently issued was an attempt to draw a balance.

I would like your comments on how well we did that.

MR. TORMEY: Lee, do you want to speak to the licensing of our technology on the outside?

MR. HUMPHRIE: Our company policy is that we are very much interested in licensing. We have used our technology to form companies, joint ventures, some of which are successful, some of which are unsuccessful. But that is the risk you run, of course. That is the business entrepreneur risk, capital investment risk.

As a general proposition, though, we are interested in licensing.

With respect to -- if I understood your question -- how does the AIA propose handling the background license problem, is that correct?

MR. DENNY: That would be good enough, yes.

MR. HUMPHRIE: Yes.

The resolution in the proposed model Act was one arrived at with much anguish in the AIA. There was considerable difference of opinion. There were those that felt that no background rights should be granted.

It was finally resolved on the basis that more or less, as the GE position was here this morning, that there undoubtedly, or there might be some subject inventions which require a license to practice, a license in the background inventions of the contractor.

We decided in the AIA, as a majority, that such rights would be granted to practice the specific product or process that was the subject matter of the contract. I believe that that is a fair and equitable position. I believe it is one which should make the AIA proposed legislation acceptable.

MR. DENNY: Have you had a chance to focus on the specific language in the ERDA proposed regulations,

MR. RAWICZ: Thank you.

MR. WEINHOLD: Thank you for your statement. I think it sharply draws the key issue we are facing now, if the contractor performing under a government contract develops something and it really wins, who gets the benefits.

I guess as it is set up now, the government would get the patents and so on under these provisions.

You are proposing sort of the opposite extreme, that it would remain fully with the industry.

MR. TORMEY: Yes, sir.

MR. WEINHOLD: I am wondering if you have considered some of these sort of intermediate type approaches in which perhaps the industry would retain all the rights, but there would be some sort of provisions for paying back or sharing in the equity or something like that, so both the taxpayers and the industry would share from these benefits?

MR. TORMEY: We have.

As I said before, I think that this question is extremely complex. I am not a patent attorney. But even as an engineer, I can see the enormous spectrum of this problem, as you say; from one end, ownership by the government, to the other end, ownership by industry. And I can visualize that there are many intermediate points along the line where some kind of equity might be traded back and forth.

My conclusion, however, is that I would prefer, because of simplicity and because of the urgency of the present ERDA problem, that we go to the industry end and have title reside with the source of the invention.

But I appreciate the myriad of choices in between.

MR. WEINHOLD: Thank you.

MR. RAWICZ: Mr. Denny?

MR. DENNY: In your suggestion that we leave the invention with the source, of course you are speaking from the position of a corporation.

(d) The term "Contractor" means any person that is a party to the Contract.

(e) The term "Subject Invention" means any invention, discovery, innovation, or improvement which, without regard to the patentability thereof, falls within the classes of patentable subject matter defined in Title 35, United States Code, Section 101 and is made by the Contractor in the performance of experimental, developmental, or research work called for by the Contract.

(f) The term "Disclosure" means a written statement sufficiently complete, to the extent developed by the Contractor, as to technical detail to convey to one skilled in the art to which the invention pertains a clear understanding of the nature, purpose, operation, and, as the case may be, physical, chemical, or electrical characteristics of the invention.

(g) The term "Made" when used in (e) above means the conception or reduction to an operable physical embodiment for the first time or the first practice of the process.

(h) The term "Practical Application" means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in

obtain a license under any patent for any invention not made in the performance of such Contract.

OTHER PROVISIONS

Sec. 9. In the event a Contractor and any person applying for a license under these provisions cannot reach agreement as to the disposition of rights on reasonable terms and conditions, including a reasonable royalty, or other consideration, the parties may have recourse to any Federal District Court of competent jurisdiction.

Sec. 10. All other Acts having provisions for ownership of Subject Inventions inconsistent with the provisions of this Act are hereby amended.

Sec. 11. If any provision of this Act, or the application of such provision to any person or circumstance, is held unconstitutional, the remainder of this Act or the application of such provisions to persons or circumstances other than those as to which it is held unconstitutional shall not be affected thereby.

has been the principal developer of the field.

Any license pursuant to this Subsection 6(a) shall be on reasonable terms and conditions and shall be royalty free unless the Contractor has made a substantial contribution at private expense (which may include the conception of an invention, privately-developed technology, or cost sharing under the contract or otherwise) toward the making of such invention, in which case the license shall include a royalty or other consideration to the Contractor.

(b) In other cases, if the Contractor is not making reasonable efforts to make practical application of the Subject Invention, any person meeting the requirements of Subsection 6(a) above shall have the right to a license under the United States Patent for such Subject Invention, under reasonable terms and conditions, including a royalty or other consideration to the Contractor.

(c) No license will be required to be granted under Subsections 6(a) and (b) above, the scope of which:

(1) exceeds that necessary to comply with the requirements of the governmental regulation, or

(2) exceeds that commercial use which is an express principal purpose of the Contract, or

such additional right.

(b) The Contractor shall promptly provide the Government with a disclosure of each Subject Invention which reasonably appears to be patentable under the laws of the United States. The Government may duplicate, publish, and disclose such disclosures; provided, however, a reasonable period of time prior to publication shall be afforded to permit the filing of patent applications thereon.

(c) The Contractor shall within a reasonable period of time after disclosing a Subject Invention notify the Contracting Officer if the Contractor elects not to file a patent application thereon or if the Contractor has filed and elects not to continue prosecution thereof. As to Subject Inventions upon which the Contractor elects not to file a patent application or elects to discontinue prosecution of a pending application, the Contractor upon request of the Government shall convey to the Government such rights as may be required for the Government to file such patent application or to continue the prosecution of such pending application, reserving to the Contractor at least an irrevocable, royalty-free, nontransferable, world-wide, nonexclusive license, together with the right to grant sublicenses.

(d) As to those Subject Inventions referred to in,

PROPOSED

Government Procurement

Inventions Incentive Act of 197-

This Act is to establish a uniform federal policy concerning the allocation of rights in inventions made in performance of a Government contract. The Constitution of the United States recognizes that it is in the public interest to provide incentives to make inventions and discoveries, and that the public benefits from the disclosure of such inventions and discoveries. Prudent Government policy recognizes such factors and also the legitimate interest of the Government and the public in inventions made in performance of certain Government contracts.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Section 1. This Act may be cited as the Government Procurement Inventions Incentive Act of 197-

DEFINITIONS

Sec. 2. Appendix "A" sets forth the definitions hereof.

RULES AND REGULATIONS

Sec. 3. The President shall issue such rules and regulations as may be necessary or desirable to carry out and effectuate the policies and provisions of this Act.

its contribution.

Provision for the collection of reasonable royalties, or other appropriate consideration, furnishes equitable means for partial recovery of development costs or otherwise compensate the contractor for its contributions, and make the benefits of the invention available for use in the form of improved goods and supplies for the public.

Section 6(b)

Section 6(b) is intended to allay any concern that a Contractor may attempt to suppress an invention made under a Government contract. The invention rights in such cases will benefit the Contractor only if it insures that the benefits are made available to the public through manufacture, practice or licensing. This Section should also be read in conjunction with Section 5(b) which grants the Government the right to publish "Subject Inventions" thus making the knowledge thereof available to the public.

Section 6(c)

It serves the public interest to induce qualified contractors possessing the best technology and highest capabilities to compete for Government-sponsored research and development contracts. It should be recognized that such competition and participation inherently stimulates innovation and invention. It follows, therefore, that the basic commercial right to exploit innovations and inventions in business where the Government should not be a competitor should be in the contractor who logically is in the best position to apply or license its innovations and inventions to improved products and services for public use and benefit. This clause spells out that the scope of the license which must be granted is no greater than the extent of the Governmental or general public need.

Section 7

Section 7 assures that the inventive results arising out of Government research and development contracts are made available to the public in fulfillment of Sections 5 and 6. This Section forecloses a Government contractor, who has achieved a dominant patent position, from precluding a licensee under Section 5 and 6 to enjoy that license to use the results developed under a Government contract to bring the new product to the commercial market place, or to use the new process for public benefit. Because the contractor is entitled to reasonable compensation for a license under his dominating patent, the contractor is encouraged to compete for government contracts in his

Section 4

Under this Section the contractor retains title to "Subject Inventions" subject to rights granted to the Government and Public under Sections 5, 6, and 7.

The retention of title by the contractor is essential to the effective utilization of the incentives in our Patent System. Thus, the fundamental Constitutional purpose to encourage the making of inventions is served. Because the contractor not only has the necessary know-how but also the incentive to advance its own innovations, it is in the best position to commercialize the patent and thus bring its benefits to the public. Finally, the most competent firms - generally those having a privately developed patent portfolio - are induced to - rather than inhibited from - competing for government research and development contracts and expending private funds in research and development effort in areas of concern to our Government.

Section 4 further provides for unenforceability of subject inventions or the assignment thereof to the Government at its option, where a Contractor willfully and with deceptive intent fails to report subject inventions. Thus acts amounting to deliberate deception are necessary to divest Contractor of its rights to its own invention, and the rights of the Government and the Public are fully protected.

Section 5(a)

The license rights of the Government under this section are essentially those now provided in the Armed Services Procurement Regulation (ASPR), U. S. Department of Defense, and which experience clearly demonstrates, fully meet the needs of the Government and insure that the Government will not be obligated to pay royalties for the use of "Subject Inventions".

Section 5(b)

This section obligates Contractors to disclose each "Subject Invention" to the Government so that the Government will be able to identify and inventory its rights under such inventions, as well as to publish "Subject Inventions" after a reasonable period of time of sufficient duration to permit the Contractor and/or the Government to file patent applications thereon. (See Section 5c). Thus the Government is in a position to publish "Subject Inventions" and in that manner make known to the public such knowledge.

extensive use of existing industrial know-how and facilities; and more importantly, demand an appreciable proportion of the valuable technical resources at hand. In a well managed firm, technical resources must be applied to those efforts having the greatest potential for return and where there is the widest latitude for broad range thinking.

To make Government contracting, for research and development (R&D), attractive to the most qualified contractors, those most expert in the field, the incentive of retaining rights to inventions made in the performance of the Government contract but useful in the private and export sectors must be present. Otherwise, and under present policies, Government contract work tends to be performed by the lesser qualified, produce less innovation and results in a lower quality of work. An example of this adverse impact is found in the apparent lack of industry interest, based on the small number of participants, in developing private use of atomic energy because of the strict "title" policy of the Atomic Energy Commission.

When the Government contracts for R&D, the objective is to have developed and delivered to the Government the contract end item, be it information, a device, a method, or a system. No contract requires that an invention be made in contract performance. Inventions are a fortuitous by-product of the contract which are neither contemplated or bargained for at time of contracting. The contractor is neither paid extra for making an invention nor defaulted for failure to do so. The Government receives its part of the bargain when the research work is performed and the end item is available for Government use. Then, it cannot be stated that the Government should acquire title to valuable patent rights for which no amount has been included in the contract price. In short, the contractor should retain title to inventions made under Government contracts.

COMMENTARY ON AIA PROPOSED MODEL PATENT STATUTE

The Aerospace Industries Association believes there is an urgent need for a Federal patent policy and

EXISTING FEDERAL POLICIES

Existing Federal policies fall within two general categories" a "title policy" under which the Government acquires title to Subject Inventions and Subject Patents and the contractor normally retains a royalty-free non-exclusive license therein, and a "license policy" under which the contractor retains title and the Government acquires a royalty-free, non-exclusive license.

Actions by the Congress to formulate patent policy have resulted either in the enactment of a "title policy" or a statutory requirement that "patents . . . be fully and freely available to the general public". This latter statutory requirement has been implemented as a "title policy".

In 1963, President Kennedy issued a Memorandum and Statement of Government Patent Policy to guide executive agencies, not otherwise governed by statute, in allocating rights to inventions made under Government grants and contracts. The Presidential Policy, developed after extensive interagency deliberations, seeks to accommodate the various Government policies and in essence embodies both "title" and "license" policies. The Presidential policy also includes "march in rights" under which, where the contractor retains title, the Government may under certain situations require the granting of licenses, either royalty-free or on other reasonable terms.

Significantly, the Presidential Patent Policy was revised in 1971 to enlarge the authority of agency heads to waive title to contractors and to authorize the grant of an exclusive license under a Government-owned patent.

The Commission on Government Procurement, which included distinguished members of the Senate and House, in its Report recommends the prompt and uniform implementation of the revised Presidential Statement of Government Patent Policy. The Commission Report also includes an alternative approach which would, with but two exceptions, allow contractors to retain title to "Subject Inventions", the government obtaining a royalty-free, nonexclusive license together with certain "march-in rights." Thus, the Commission's alternate approach is, in essence, a license policy.

Constitutional purpose of the Patent System is "To promote the progress of the useful arts", i.e., foster the development of new technology to thereby raise the national standard of living and improve the economy. The Patent System, created for the primary benefit of the people as a whole, offers the inventor a patent to induce him to make an invention and then a complete disclosure of his invention to the public, which he could otherwise maintain in secrecy. When the patent issues its disclosure not only teaches the public the use of the inventive concept but also affords the public the opportunity to build upon and improve such knowledge. For a very nominal sum anyone can obtain a copy of the patent from the U.S. Patent Office and thus obtain the knowledge taught therein. This requirement that a patantee must disclose his invention to the public coupled with the further requirement that a patentee must successfully petition a Federal Court to enjoin the unlicensed practice of his patented invention should lay to rest another common misbelief that a patentee can suppress his invention and thus deny its benefits to the public. Further, at the expiration of the patent term anyone may freely use the invention.

The incentives and present benefits of the American Patent System have been summarized in the Report of the President's Commission on the Patent System (1966) as follows:

> "Agreeing that the patent system has in the past performed well its Constitutional mandate 'to promote the progress of ... useful arts,' the Commission asked itself: What is the basic worth of a patent system in the context of present day conditions? The members of the Commission unanimously agreed that a patent system today is capable of continuing to provide an incentive to research, development, and innovation. They have discovered no practical substitute for the unique service it renders.
>
> "First, a patent system provides an incentive to invent by offering the possibility of reward to the inventor and to those who support him. This prospect encourages the expenditure of time and private risk capital in research and development efforts.
>
> "Second, and complementary to the first, a

AIA

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PROPOSED

GOVERNMENT PROCUREMENT INVENTION INCENTIVE ACT

197_

Proposed legislation to provide for the equitable allocation of rights to inventions made in the performance of research and development under Government contracts

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.

1725 DE SALES STREET, N.W., WASHINGTON, D. C. 20036 TEL. (202) 347-2315

A contractor is ordinarily interested in staying in business, staying competitive, and advancing his capability. In the U. S. industrial scene, the contractor is the producer. All our goods or processes come from the producer. He is the major factor in determining whether or not a product is made, is available, and is successful.

It is in the public interest that due regard be had for this particular position of his. If his position is eroded or hamstrung by disincentivizing acts, or inefficiency of the procurement process, everyone feels it, the contractor, the government, and the public. If he performs his function well, everyone benefits.

It is vital to maintain in this country a strong, competitive, healthy industry. That is desirable in government procurement as well as in commercial procurement. Certainly, rules and regulations are necessary to maintain order and equity. But the fewer unnecessary constraints imposed by laws and regulations to the conduct of business, especially ERDA business, the more effectively business can function.

As pointed out previously, government support, in and of itself, does not justify government ownership of things historically owned in this country by private industry.

We appreciate the hard work that has gone into forming the patent provisions of the present ERDA Act. We can see the difficult compromises that have been made by both sides in the debate between title and license. We believe the waiver authority granted to the Administrator represents a definite move away from the strong government title-holding position. However, the move should be made to a more optimum point.

The patent policy ERDA should follow under present statutes is one which provides the most contractor incentive, yet provides for the government and the public. It should be one which is the most efficient, requires the least negotiation, yet protects the government and the "public interest." One which warmly encourages a contractor to bring his background to government procurement.

In our opinion, the AIA proposal does just that, and we recommend it to you.

I would like to talk a bit about the government interest. Our position, which is the same as the AIA position, we believe, is strongly supportive to the proposition that the government interests regarding ERDA inventions and patents should be protected at all times.

In those cases in which use of the patent is desired by the government, the government should have the free and unencumbered right to use the inventions and such right should be irrevocable.

In order to assure that other government rights be assured, there, of course, must be a disclosure and reporting system placed upon the contractor. Such system should be simple and direct.

Even in this area, investigations, review boards, and other administrative procedures may become inefficient and time-consuming. If the contractor retains patent rights as proposed herein, there is greater motivation on his part to identify and to apply the invention and less interest on the part of the government agency to investigate and review.

The classical argument often advanced for government ownership of inventions reduced to practice under R and D contracts is that the government "paid for it."

Payment is only part of the story, we submit. The contractor brings to a contract his capability, background, facilities, personnel, which is the "quid pro quo" to match the government's purchase price.

The contractor's role in the area of contributions is customarily to contribute his commitment of time, talent, and energy, all of which should be recognized as fully as valuable as the dollars it takes to buy them.

Public interest, I feel, is basically what ERDA is all about. We, the public, have a problem and Congress has enacted ERDA to solve it.

The public is interested in getting better and less expensive energy products and services. The public wants to get out of this energy mess now. An efficient, simple system, which is effective, best serves the "public interest."

It is clear to us, as a high technology company, that the right to retain a property interest in technological developments under government contracts provides more encouragement and incentive to enter into government ERDA contracts than the present licensing provisions of the nuclear and nonnuclear laws and regulations.

This incentive issue is even more important when the contractor has substantial background and capability in the field of technology of the contract and when the need for progress is critical, as in this current energy crisis. He, even more so than others less skilled, should be afforded sufficient incentives to bring these forth and use them in the government contract, rather than discouraged through their potential loss by background or mandatory licensing.

It must be recognized that the smaller ERDA research and development contract opportunities are closely reviewed by each potential contractor to determine whether or not winning will compromise his background technology by requiring title to the government in the contractor's prior concepts or, possibly, as occurs in many cases, a license in his background patents.

He may simply find that the small R and D contract effort and potential gain are not worth the background losses. Generally, small businesses in competitive product lines are reluctant to contract away their background patent rights.

The basic tenant of the U. S. patent system that ownership of inventions be maintained at the source appears in the light of our experience to be sound. It should be continued by ERDA and applied as widely as possible. It appears to us to provide the best climate for the creation and commercialization of the new technology needed to overcome the energy shortage. Everything reasonable should be done to encourage the creation of this new technology.

The issue is critical.

On the subject of efficiency, it appears on inspection to be more efficient, both technically and economically, to retain and exercise patent rights at the source than it is to transfer such rights to the government and then attempt to transfer them over to other users.

The position we favor will require modification of the existing ERDA nuclear and nonnuclear statutory enactments. We wish to point out why we consider this step to be necessary.

Our fundamental position, gentlemen, is that title to inventions made in the course of or under an ERDA contract should generally vest with the source of that invention, but with provisions to protect the interests of the U. S. government and the public.

This position is in basic agreement with the Aerospace Industries Association (AIA) position, which is, of course, the position of the majority of the aerospace firms in that association.

The AIA position is set forth in a proposed Model Government Procurement Inventions Incentive Act which has been promulgated by the AIA. A copy, together with commentary on that proposed Act, is attached to my presentation.

Rockwell International has been active in framing the AIA position. We believe that our proposed Act brings into better balance the triumvirate of interests, those of the government, the public, and the contracting industry of this country as they work in concert, under ERDA to resolve the energy situation looming up in front of us.

The fundamental theme underlying our position is that technology should better be owned by the industrial segment of a nation than by its government. Today technology, or technical knowledge, is number one as the most important tool in the production of goods and services. It should reside in the hands of its natural operator, industry, even though in those cases where it is supported and financed by the government, provided due regard is made for the public interest and the ERDA mission is not compromised.

"Public interest," we submit, is best served by the ERDA technology benefiting the public through industry directly rather than through government indirectly.

I wish to develop my argument along five lines. I hope to show that:

I would say primarily by Mr. Green and myself. There are quite a number of points which must be satisfied before one becomes eligible for a waiver. This is expressed in statutory policy. I think, at least it has been our impression, that it will be very difficult for us, at least, to meet these qualifications.

We are hopeful that there will be some, some instances in which we can. Back at the time the law was passed, there were two different policy statements being considered. At that time, our comments were asked. Nobody had a vote unless you were a member of Congress, but we indicated our support for the provisions which were adopted on the basis that at least we would have a chance for waivers some day, perhaps under some inventions.

We would really, given our "druthers," prefer to see more freedom in the administrators. In other words, we prefer less statutory requirements and more administrative freedom with the people who are really there working with the contractors, working with the developments and who hopefully have a good feel at that time.

But we simply don't have any facts at this point to say that a change is absolutely necessary. Can you add anything to that?

MR. GREEN: Just to second it.

MR. KIMBALL: Thank you.

MR. RITZMANN: Could you elaborate on what you mean by assured right to proceed with the foreign filing when the Government doesn't?

It seems to me that before you can file a form, you have to ask the Government whether they are going to file. Isn't it the same as the present administrative approval?

MR. MANBECK: No, again, as we understand it, under the present arrangement the Government will choose whether or not it wishes to file. At that point, let's say it does. All right; then obviously it will file. But let's say it chooses that it will not. In that case, we still have to come in under the clauses and say, "May we file when you have said you are not going to?"

But the commercial businesses are not used to them and fear a detrimental effect on their operating.

We have a couple of contracts hung up right now on the point of the right to use.

MR. DENNY: I think this right to use question has to be looked at. If it was in another section as opposed to Part IX., probably it would have been addressed more specifically.

I would make the additional comment that some of the changes, hopefully advanced, that have been made in our regulations that were published, have been almost on a negotiation-by-negotiation basis. Sometimes there were times when field people knew what they were doing, and sometimes that was not the case.

The patent counsels that were here yesterday and today are meeting following this for the purpose of getting together. It has been a confused atmosphere. I hope we will get a lot more consistent.

Whether that will make you happy or not, I won't promise.

MR. FINGER: I think, Mr. Denny, that it is important to point out that the most recent contract that was signed by one of our divisions includes a blanket restriction on the use of the data developed during the contract, and it says it shall not be used except in the performance of a contract.

MR. MANBECK: I would like to add that this is probably the only division of General Electric Company that would accept such a contract. I am surprised that even they did.

MR. DENNY: I do not find that hard to believe. We revised Part IX. This restriction comes from another part of ERDA regulations in which there may be lots of inconsistencies and things we have to patch up yet.

I can understand this possibility, and I think we will be addressing this point in ERDA.

MR. RAWICZ: Thank you, Bob.

Dave.

contracts, it is essential that the contract clauses do not inhibit the obtaining of foreign patent coverage relating to that information.

We thank you for the opportunity to present comments in behalf of General Electric and hope that they will be accepted and considered for appropriate action. We would be pleased to take any questions you may have.

MR. RAWICZ: Thank you.

Do we have any questions?

The question I would ask is, from your experience with operation under the Atomic Energy Act, do you see any problem of applying these same waiver procedures to atomic energy inventions as we have with those regulations?

MR. MANBECK: I would like to ask Mr. Green to answer, if I may, since he has more experience, I know, than I do.

MR. GREEN: The question is whether the waiver procedures proposed for the nonnuclear would seem to be appropriate for the nuclear area?

MR. RAWICZ: Right.

MR. GREEN: Insofar as I am concerned, I see no reason why they would not. It seems to me that there is desirability for uniform treatment of both areas.

MR. RAWICZ: Thank you.

MR. DENNY: It would have been nice if the regulations which came out on October 15 would have come out on February 15, but that is just not the way it happened.

A lot of the experience with which you are dealing or have been dealing and commenting on is a combination of policies from various agencies. Particularly in the patent area, we have progressed a little more rapidly in change than we have in data.

Mentioning the data problems, you identified two. Have you come up against a situation yet that you just could not resolve, or has it been mostly the time and effort to resolve them?

The background patent clause itself must, of course, be carefully administered if it is to avoid adverse results. As now written, it is directed to items or processes which are a subject of the research, development, or demonstration work performed under the contract. This is fair, but industry experiences problems when ERDA field personnel try to expand, to an undue degree, the field of technology covered by the background clause.

For example, the background clause in a contract with a limited purpose, say, the development of an improved current transformer, should not apply to all patents in the field of electric transmission and distribution. The example is entirely hypothetical -- at least, I hope it is. I hope we are not working on a current transformer. But we see just such approaches made in real life contracting. Particularly for a multi-line company, this causes problems and delays in the contracting process, and in an aggravated case could even result in an inability to accept the contract work. The clause itself is reasonable, but we suggest that ERDA headquarters should take further steps to prevent over-reaching by sincere but misguided field personnel. They are given a clear directive against over-reaching in paragraph (8) of the proposed regulation, but follow-up by headquarters is needed.

Turning now from background rights to foreground inventions, to our understanding, American industry as a whole believes that commercialization of foreground inventions can be best accomplished by leaving ownership with their originators, in this case innovative ERDA contractors. We see no reason to disagree with this view; it is a matter of human nature that you tend to put more effort into what you own than what you don't own.

On the other hand, it is too early in the history of ERDA for us to cite concrete examples which would indicate or provide that ERDA's mission is being impaired by the existing statutory and policy arrangements. We have as yet no experience with the waiver procedures for foregoing inventions and prefer not to comment on them until we see how they work in actual practice.

A suspicion exists that the rather lengthy statutory and policy requirements for waivers will result in few being requested and even fewer granted. This, if so -- and as I indicate, this is only a suspicion -- will effectively eliminate patents as tools for speeding commercialization. However, such result remains to be seen, and until then, we

Moreover, this is not the only problem with the optional clauses. There is an equally, if not more, serious problem, in relation to the growing trend for ERDA to make multiple, competitive awards for early technological development phases of long term R and D programs. Frequently and perhaps generally, these multiple awards will be to companies that usually compete in the related commercial businesses. We would certainly not consider it acceptable to provide the government with proprietary data that it could then furnish to these competitors, in the normal commercial businesses.

But yet, the proposed regulations provide for just that since they stipulate that ERDA would have the right to furnish the background data of any contractor to any other contractor involved in the "program."

In essence, therefore, we believe that the proposed optional clauses on treatment of privately developed background data:

(1) do not serve as a policy, since they do not establish adequate guidance and direction; and

(2) do not provide adequate protection of the contractor's background proprietary data.

From this discussion, you can see we obviously believe the proposed data policy needs modification, but that a good start has been made. We will be submitting more detailed comments to Mr. Denny on this subject and would be pleased to elaborate on the points further at your convenience.

MR. RAWICZ: Mr. Manbeck.

MR. MANBECK: If I may go forward now on the patent part of our presentation.

As everyone in this room is aware, Section 9 of the Act of 1974 sets certain requirements which ERDA must meet in its handling of patent affairs, but the statute does allow reasonable administrative flexibility within its mandated requirements. We feel the statute is workable in its present form, and at least to date, experience has not proven a need for major changes.

The same holds true, in our view, with respect to the Atomic Energy Act. Its patent policy provisions are such

We had thought that once ERDA's new patent and data regulations were issued, any such terms would be discontinued. Indeed, we were encouraged upon receiving and reviewing the proposed regulations published October 15 to note that the basic data provisions prescribed for general usage do not adopt the concept that the government should acquire ownership of foreground data. We assumed from this that the only limitations on contractor use or disclosure of foreground data would be those imposed by the patent and national security provisions of the contract. We were, therefore, disturbed to learn from recent discussions with ERDA personnel that ERDA may well continue to include provisions in its contracts limiting the contractor's use of foreground data.

As I indicated earlier, we believe that any procedural or administrative obstacles which prevent or delay the contractor's ability to apply new energy technology is inconsistent with our national objectives. Such obstacles will retard, not accelerate, the generation and application of new technology to meet our national energy needs. We, therefore, urge that ERDA expressly adopt the principle that there shall be no contractual limitations placed upon the contractor's right to use foreground technical data.

Now, let me come to the second major issue we face.

We believe the contractor's background proprietary data must be protected.

The proposed ERDA regulations published on October 15 provide a basic Rights in Technical Data clause prescribed for general usage that we think represents a constructive approach. It sets forth a sound basis for the establishment of a workable ERDA policy concerning proprietary data. Basically, this approach provides that the contractor need not include proprietary data in the documentation it may be required to furnish under the contract. The government, however, retains the right to inspect such proprietary data for the purpose of evaluating the work performed under the contract or verifying the true proprietary nature of the data. Although there are some suggestions that we will be furnishing to Mr. Denny's office to clarify several points in the language used, we believe that this approach is a reasonable and proper one.

But we have serious problems and concerns stemming from the so-called optional data provisions that are

persuade some of our commercial businesses who have never done business with the government that it would be to their benefit to participate in ERDA R and D programs, and those of other agencies involved in solving our energy problems.

When I think back to my days at NASA and AEC, I can't help but contrast the situation there and that with which we are concerned today in our energy R and D activities. In my NASA and AEC activities, we required the development of products to be furnished to and used by the government for the conduct of its missions. Since the technologies involved were also often employed in defense products, it was only natural that both markets were served by an aerospace/defense segment of industry whose R and D had been supported largely by the Government and whose principal business activities were with the Government. The contractors were accustomed to dealing with the special requirements of the Government and contracting progressed on a generally even keel.

In the present situation, ERDA's mission is to accelerate the development and commercial application of base technologies that have frequently been developed by a segment of industry that has had little experience in dealing with the Government. These companies have developed technology at their own private expense to provide new, competitively advantageous products for nongovernmental customers. Specifically, this has been the history of development in the fields of electric power generation and electric transmission and distribution, where our company has been very active.

In such highly competitive, commercial businesses, most participants have continuously invested their own funds to develop and improve their own base of proprietary data in the form of design criteria, manufacturing processes, design techniques, analytical tools, et cetera, that they must have and apply in order to introduce new competitive products. The proprietary data so developed usually represents large investments and is highly valued as a competitive tool. It is accordingly carefully guarded against any disclosure that could ultimately result in its becoming available to competition.

The activity participation of such commercially oriented enterprises in ERDA-sponsored R and D programs in our view will be essential to accomplishment of ERDA's mission. However, we believe that improperly formulated and administered ERDA data policies could act as a substantial deterrent to such participation.

P R O C E E D I N G S

CHAIRMAN JOHNSON: Good morning and welcome to the second day of our public hearings of ERDA patent policy and issues connected with that subject.

I have a few administrative announcements first this morning. We are receiving a number of letters and other statements which will be available in the lobby. We don't have the ability to reproduce them in sufficient quantities, so if anyone is interested, they can be read in the lobby and they will be in the formal record of our proceedings and they will be considered by ERDA.

Secondly, we have made arrangements for coffee to be delivered at 10:00 o'clock this morning and at 3:30. So we will be taking short breaks to stimulate us. We are going to ask you if you would be so kind as to make a small contribution if you are interested in having the coffee, because otherwise the man on the hook at the moment is myself. As much as I love the subject, I would like some help on coffee. It is not going to be possible for me to be here, certainly, this morning. I may be able to be here this afternoon, but in my place as the presider will be Leonard Rawicz, Deputy General Counsel, formerly patent counsel of NASA, and one who is well known to many of you in this room.

So we are very interested in hearing the presentations that will be made today and to preside over the session here is Len Rawicz.

MR. RAWICZ: Thank you.

I guess we are all ready, so let's start off with our first presentation today.

H. H. Green, Harry Manbeck, and Harry Finger of General Electric Company.

MR. MANBECK: My name is Harry F. Manbeck, Jr., and I am General Patent Counsel of General Electric Company. As such, I am responsible for the integration of the legal affairs throughout the company dealing with patent and data matters. I am here today with Mr. Harold B. Finger, General Manager of the Center for Energy Systems of General Electric, and Mr. Harold H. Green, Jr., Patent Counsel to the Energy Systems and Technology Division of the company. Mr. Finger and I wish to offer