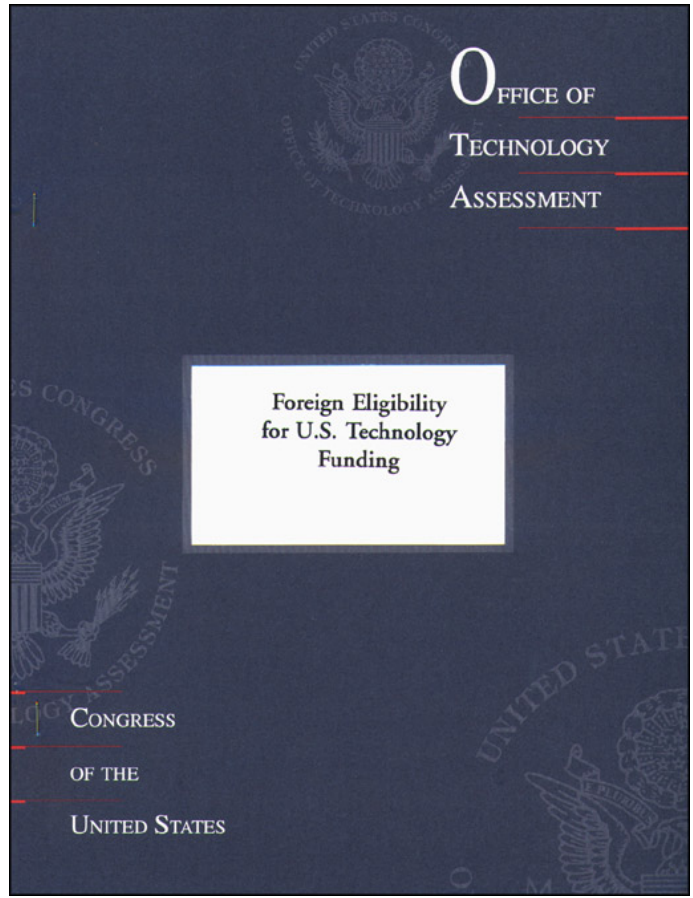
Foreign Eligibility for U.S. Technology Funding

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Foreword

The presence of foreign-based multinational firms in the United States has transformed many sectors of the U.S. economy—automobiles and chemicals come readily to mind. In the past decade, foreign direct investment in the United States increased by 280 percent to reach $445 billion in 1993. Foreign-based multinational firms bring technology and capital to a range of industries, and employ hundreds of thousands of workers in the United States. For these reasons, the United States welcomes foreign investors, affording them the same rights and protections as U.S.-based companies.

But in some foreign countries, U.S. firms have not received comparable treatment. U.S. companies have faced considerable barriers to direct investment, their intellectual property rights have not been adequately protected, and they have not enjoyed comparable access to technology development programs funded by foreign governments.

These concerns prompted U.S. Congress to pass legislation governing the eligibility of foreign-based firms to participate in U.S. government technology programs, for example, the Advanced Technology Program and several technology programs funded under the Energy Policy Act of 1992. This paper addresses the question: What eligibility conditions should affiliates of foreign firms be required to meet before receiving financial assistance from the U.S. government?

This is a follow-on product to OTA's assessment of Multinational Firms and the U.S. Technology Base. That assessment was requested by the Senate Committee on Commerce, Science, and Transportation and the Senate Committee on Banking, Housing, and Urban Affairs.



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Foreign Eligibility for U.S. Technology Funding

FOREIGN ELIGIBILITY AND NATIONAL TREATMENT

In recent years, a number of U.S. government research and technology development programs have faced the issue of whether to provide financial assistance to foreign-owned companies, and if so, under what conditions. This is an important issue because technology leadership is at the foundation of the U.S. economy, and ultimately contributes to the standard of living for all Americans. A principal concern is that foreign-owned companies might use U.S. funds to develop technology that might not contribute to the U.S. economy, or in the extreme, might be used to compete against U.S.-based companies. Congress has given the most explicit guidance in this area to the Advanced Technology Program (ATP) run by the Department of Commerce, and to a diverse array of basic and applied R&D programs funded by the Department of Energy, pursuant to the Energy Policy Act of 1992 (EPAct).[1] That guidance has taken the form of an *economic interest test for all participating companies*, coupled with a set of *comparable treatment requirements that apply only to foreign-owned applicants*. These are analyzed in detail in this paper.

In the economic interest test, the Secretary of the relevant department (Commerce or Energy) must find that participation by the company would be in the economic interests of the United States. This requirement goes straight to the purpose of the programs, which is to share the cost with industry of developing new technologies that contribute to the U.S. technology base and ulti-

[1] P.L. 102-486.

mately enhance the competitiveness of U.S. industry. In the case of ATP, matching grants to industry range across a broad spectrum of new and emerging technologies; whereas the DOE programs are focused on technologies more closely associated with the energy and environmental missions of that agency.

The comparable treatment requirements, which attach to the policies and practices of foreign governments, and not to the behavior of particular firms, have caused wide concern in the business community, both in the United States and abroad. (These provisions are listed in this paper.) Business advocates have labeled them "conditional national treatment" because they believe that such requirements may exclude foreign-owned firms from U.S. technology funding, eroding the principle of national treatment. Strict adherence to that principle, they assert, would require the U.S. government to treat foreign-owned firms exactly as it treats U.S.-owned companies. National treatment, they suggest, has been embraced widely as a fundamental tenet underlying the post-World War II system of international trade and investment.

But the issue is not so clear cut. National treatment is a principle that is usually applied to government treatment of private sector trade and investment. It has not generally been extended to the area of government-funded research and technology programs. Indeed, as the Advanced Technology Program has documented in its foreign eligibility determinations, most nations impose additional conditions on foreign firms before finding them eligible to compete for government technology grants.[2]

Moreover, there is a difference between the principle of national treatment and its application: governments make many exceptions to the principle on economic and national security grounds.[3] In the United States, for example, foreign-owned firms are prohibited from acquiring U.S. arms companies that have been awarded contracts in excess of $500 million by the Energy or Defense Departments.[4] In Europe, discrimination against U.S. firms in telecommunications procurement has continued, despite bilateral procurement agreements concluded on May 25, 1993 and April 15, 1994.[5] And in Japan, most funding by the Science and Technology Agency is allocated to "domestic only" R&D projects.[6]

It would be possible to extend the scope of national treatment to reach eligibility for government-funded research and technology programs, but it probably would have to be done at the level of a formal multilateral treaty. In that case, the U.S. affiliates of Toyota, Daimler Benz, NEC, and ABB would be subject to the same eligibility requirements for U.S. government technology programs as GM, Ford, IBM, and GE. Conversely, when U.S. companies seek to participate in technology promotion programs of foreign governments, they would receive the same treatment as local firms.

This would represent a departure from the status quo. As we note above, foreign firms do not expect the same access to Japanese government

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[2] U.S. Department of Commerce, National Institute of Standards and Technology, "Determination," Nov. 17, 1994, p. 1. Hereafter cited as ATP Determination.

[3] "Areas in which foreign-owned companies are often treated differently include ownership of domestic firms, participation in national R&D and technology programmes and public procurement contracts. In addition, liberalising measures may be accompanied by reciprocity conditions under which foreign-owned companies are treated as domestic ones, only if other countries do the same." Robert Brainard, "Globalization and Corporate Nationality," in OECD, *STI Review* (Paris, France: OECD, 1993), p. 179.

[4] The provision is contained in section 835 of the FY 1993 Defense Authorization.

[5] United States Trade Representative, *1995 National Trade Estimate Report on Foreign Trade Barriers* (Washington, DC: Government Printing Office, 1995), pp. 98-99.

[6] ATP Determination, "Foreign Analysis—Japan," p. 1.

technology programs as Japanese firms receive. And while European Union technology programs are open to foreign-owned companies that conduct research in Europe, several of the member states maintain somewhat more restrictive conditions.[7] Germany, for example, imposes many participation requirements on foreign-owned companies.[8]

Even in the United States, which has led the charge for national treatment in Europe and Asia for five decades, the national treatment principle does not apply universally to government technology programs. Toyota and Daimler, for example, have not been encouraged to participate in the Program for a New Generation of Vehicles (PNGV), which is a partnership between the U.S. government and the Big 3 American automakers. NEC would not have been eligible for funding under the fifth round in the Advanced Technology Program competition, because ATP found Japanese firms ineligible under section 29 (d)(9) of the National Institute of Standards and Technology Act.[9] And in order for ABB Power Generation Systems, Inc. to participate in an Energy Department program to develop a highly efficient gas turbine for power generation, Switzerland had to meet comparable treatment conditions imposed by section 2306 of the Energy Policy Act of 1992.[10]

These exceptions to national treatment in the United States and abroad are emblematic of a more global problem identified and analyzed in OTA's assessment of Multinational Firms and the U.S. Technology Base. U.S. firms face significant barriers to trade, investment, government procurement, and government technology funding, both in Europe and in Asia, and especially in Japan. Broad asymmetries in market access, foreign direct investment, and technology transfer policies between the United States and some of its major trading partners raise the concern that U.S. firms may face systematic discrimination in some foreign markets.[11] Imbalances may occur as a result of inadequate intellectual property rights (IPR) protection, domestically targeted government procurement, and other barriers to trade, broadly defined.[12]

Some business leaders argue that the United States needs to do more to open foreign markets where they are closed, and to address exclusion of U.S. companies from foreign government procurement programs, especially in such areas as telecommunications and construction. They have sought relief under U.S. trade law and through the relevant departments of the U.S. government.[13] But the issue of how to treat foreign affiliates with

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[7] Based in part on OTA interviews with executives of U.S.-based multinational firms.

[8] For example, the foreign firm must maintain a permanent R&D facility in Germany, demonstrating intent to use the resulting technology primarily in Germany; it should support production capacity in Germany sufficient to use the results of the R&D; government-funded R&D should contribute to expansion of the firm's R&D capacity in Germany and generally increase the attractiveness of Germany as a place for business development; and foreign affiliates should become somewhat more independent from their parent companies as a result of the R&D funded by the German government. ATP Determination, "Foreign Analysis—Germany," pp.1-2.

[9] (15 U.S.C. 278n(d)(9)).

[10] U.S. Department of Energy, "Determination of Eligibility for Funding: Advanced Turbine Systems Program Conceptual Design and Product Development Solicitation No. DE-RP21-92MC29257," July 14, 1994, p. 1.

[11] See U.S. Congress, Office of Technology Assessment, *Multinationals and the U.S. Technology Base*, OTA-ITE-612 (Washington, DC: U.S. Government Printing Office, September 1994), passim.

[12] Various categories of trade barriers have been defined and documented annually for the past decade, most recently in United States Trade Representative, *1995 National Trade Estimate Report on Foreign Trade Barriers* (Washington, DC: Government Printing Office, 1995), pp. 1-2 and passim.

[13] See, for example, U.S. Department of Energy, Office of Science Policy, Notice of Proposed Rulemaking, "Financial Assistance Rules: Eligibility Determination for Certain Financial Assistance Programs," Docket No. PO-RM-95-101, Transcript of Public Hearing, Wednesday, April 19, 1995, testimony of Eugene W. Zeltman of G.E. Power Systems, pp. 18-21.

respect to U.S. government funding of basic research, applied research, and technology development is somewhat more contentious.

There can be no doubt that foreign-owned companies make a substantial contribution to technology development in the United States, even though multinational firms tend to develop the bulk of their technology at home.[14] It makes sense for U.S. policy to encourage foreign affiliates to bring new technology to the United States, to invest in research and development here, as opposed to abroad, as a way to enhance the U.S. technology base. By extending R&D funding to foreign affiliates, U.S. government programs may induce such firms to bring both capital and technology resources to the table. The benefits can flow in both directions. U.S. firms, for example, have found it increasingly easy to qualify for technology funding in Germany, because the German government hopes to increase international competitiveness by encouraging foreign firms to establish local research and development facilities.[15]

But there are lingering concerns. First, if U.S. companies are unable to achieve comparable access to technology development programs in some foreign countries, it may cause U.S. companies to be less competitive or face stiffer competition than might otherwise have been the case. Second, taxpayers have a right to insist that their taxes contribute to the national interest, i.e., to the U.S. technology base, the U.S. economy, and ultimately to better jobs and a higher standard of living for all Americans. For this reason, many believe that government should ensure that technology developed at taxpayer expense is not handed over to foreign interests without restriction, particularly if it might then be used to compete against U.S. companies. These conflicting perspectives raise the fundamental question of this paper: **What eligibility conditions should affiliates of foreign firms be required to meet before receiving financial assistance from the U.S. government?**

This paper is a follow-on report to OTA's assessment of Multinational Firms and the U.S. Technology Base. That assessment published two major reports, *Multinationals and the National Interest: Playing By Different Rules* (September 1993) and *Multinationals and the U.S. Technology Base* (September 1994). It was requested by the Senate Committee on Commerce, Science, and Transportation and the Senate Committee on Banking, Housing, and Urban Affairs.

THE ECONOMIC INTEREST TEST AND COMPARABLE TREATMENT PROVISIONS IN EXISTING LEGISLATION

Eight public laws (and 20 pieces of legislation proposed in the 103d Congress) contain an economic interest test and/or special conditions that apply to foreign firms. (See box 1 for a list of these legislative provisions.) The authorizing legislation for the Technology Reinvestment Program of the Department of Defense, for example, defines an "eligible" firm as one that "conducts a significant level of its research, development, engineering, and manufacturing activities in the United States." It also requires that the firm be owned or controlled by U.S. citizens, and in cases where it is not, the law requires that the country of origin of the firm encourage U.S. companies to participate in its technology programs and provide protection for U.S. intellectual property rights. The law also requires that "the principal economic benefits . . . [arising from the TRP] accrue to the economy of the United States."

The most extensive eligibility requirements, however, are contained in nearly identical provisions of the Advanced Technology Program and Energy Policy Act legislation that governs eligibility requirements for participating firms. (See

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[14] See *Multinationals and the U.S. Technology Base*, p. 2.

[15] "Germans Funding Foreign Firms' R&D in Quest for Technology Edge," *German American Business Association (GABA)*, April 1995, p. 6.

BOX 1: Laws and Legislation Based on a Conditional National Treatment Framework

Public Laws

- American Technology Preeminence Act," P.L, 102-245, including the "Technology Administration Authorization Act of 1991 ." (15 U. SC. § 278n).
- Defense Authorization Legislation, P.L. 102-484. (H.R. 5006/S. 3114). (10 U.S.C. § 2491). Amended by the Defense Authorization Legislation for FY 1994, P.L. 103-160.
- Defense Authorization Legislation, P.L. 102-190, comprised of the "National Critical Technologies Act of 1991" (S. 1327) and the "Advanced Manufacturing Technology Act of 1991" (S. 1328).(1 O U.S.C. § 2491).
- "National Cooperative Production Amendments of 1993," P.L. 103-42. (15 U.S.C. § 4306).
- "Stevenson-Wydler Technology Innovation Act of 1980," as amended (15 U.S.C. § 3710a).
- "Bayh-Dole Act of 1980" (35 U.S.C. Chapter 18 § 204).
- "Energy Policy Act of 1992" (42 U.S.C. § 13525).
- "Hazardous Materials Transportation Authorization Act of 1994--Trucking Industry Regulatory Reform Act of 1994," P.L. 103-311. (H.R. 2178).

Legislation Considered in the 103d Congress

- "Aeronautical Technology Consortium Act of 1993," S. 419/H.R. 1675.
- "National Environmental Technology Act of 1993, " S. 978.
- "Environmental Technologies Act of 1994," H.R. 3870.
- "National Competitiveness Act of 1993," H.R. 820/S.4.
- "Hydrogen Future Act of 1993," H.R. 1479.
- "National Aeronautics and Space Administration Authorization Act," H.R. 2200.
- "Omnibus Space Commercialization Act of 1993," H.R. 2731.
- H.R. 249. Introduced by Rep. McCandless (R-CA).
- "Fair Trade in Financial Services Act of 1993, " S. 1527.
- "Fair Trade in Financial Services Act of 1993," H.R. 3248.
- Authorizations for the "Earthquake Hazards Reduction Act of 1977," H.R. 3485.
- "Fair Trade in Services Act of 1993," H.R. 3565.
- To authorize appropriations to the National Aeronautics and Space Administration, H.R. 4489.
- To provide that recipients of export promotion assistance should meet certain requirements, H.R. 4935.
- "Department of Energy Laboratory Technology Act of 1994," H.R. 1432.
- "Department of Energy National Competitiveness Technology Partnership Act of 1993," S. 473.
- "Environmental Technologies Act of 1993," H.R. 3603.
- "National Aeronautics and Space Administration Technology Investment Act of 1994," S. 1881.
- "Environmentally Advanced Technologies Research and Development Act," H.R. 3536,
- "National Treatment in 1994," Banking Act of H.R. 4926.

SOURCE: Based on a compendium prepared by Robert S. Schwartz, Bennett A. Caplan and Patricia O'Keefe of McDermott, Will & Emery, 1994.

Appendix A for the relevant TRP, ATP, and EPAct legislative provisions.) These include both an economic interest test for all applicants, and comparable treatment requirements for U.S. affiliates of foreign-based multinational enterprises.

Intent of the ATP/EPAct Foreign Eligibility Rules[16]

According to its authors, the intent of the ATP/EPAct rule was to say that Congress does not believe that taxpayer dollars should be provided to companies which (1) do not act in the economic interest of the United States and/or (2) come from countries that choose not to treat U.S. firms as they treat indigenous firms. Over and above the issue of fairness, this approach has practical implications: In the late 20th century, technology is highly mobile, and it is essential to sustain the nation's economic growth. If foreign firms receive financial support from the United States government, but U.S. firms are unable to obtain comparable treatment abroad, then the United States will, in time, find itself at a technological and economic disadvantage in an increasingly competitive global business environment.

Staff who drafted the ATP/EPAct language explicitly considered, and then rejected, a requirement making foreign companies ineligible unless their governments provided "reciprocal," i.e., identical, types of access for U.S. firms. They decided, instead, to follow a national treatment-type standard, employing the phrase "opportunities, comparable to those afforded to any other company." The basic idea is to evaluate whether other nations provide U.S. firms with national treatment (in research funding, direct investment, and intellectual property rights). By rejecting specific reciprocity, they hoped to maintain a sharp distinction between domestic technology policy and international trade policy.

Moreover, the ATP rule was not intended as a tool to force other countries to change the way they conduct their R&D programs, nor as a method of retaliating against unfair practices of other countries. It is fundamentally a statement of U.S. policy that firms from countries whose research, investment, and intellectual property rights policies do not afford "national treatment" to U.S. companies should not receive U.S. government funds.

What the ATP/EPAct Statute Says

The ATP/EPAct statutory language is in two parts. (It is reprinted in Appendix A of this report.) The first requires a secretarial finding that participation by a company "would be in the economic interest of the United States." In the second part, the secretary must find that the foreign country from which the applicant comes does not discriminate against U.S. companies in a number of areas. Both parts of the statute are described below.

1. *The Economic Interest Test:* A firm would be eligible to receive financial assistance under the ATP/EPAct rule if its participation "would be in the economic interest of the United States, as evidenced by":
   - investments in the United States in research, development and manufacturing;
   - a significant contribution to employment in the United States;
   - an agreement to promote manufacture of resulting products in the United States;
   - an agreement to procure parts and materials from "competitive" suppliers.

   Two points are of interest. First, these economic benefit criteria are nondiscriminatory: they are imposed on all participating companies, without regard to national ownership or control. Second, the statute operates at the level of the firm, joint venture, or consortium. It addresses the investment, employment, manufacturing, and sourcing *behavior* of applicant companies. In addition, items 1 and 2 focus on

[16] This section is based on OTA interviews and exchange of documents with congressional staff who drafted the ATP/EPAct language in question.

past behavior of the firm and items 3 and 4 entail assurances from the firm about future behavior.

2. *The Comparable Treatment Test:* In contrast to the economic interest test, the comparable treatment provisions of ATP/EPAct apply not to particular firms, but to the nations in which their parent companies are based. The foreign country must pass a comparable treatment test on three counts. It must afford to U.S.-owned companies:
   - opportunities to participate in any joint venture similar to those authorized under this Act comparable to any other firm [*the R&D counterpart program provision*];
   - local investment opportunities comparable to any other firm [*the local investment provision*]; and
   - "adequate and effective protection for the intellectual property rights" [*the IPR provision*].

PROBLEMS IN IMPLEMENTATION

Several major problems have emerged in implementing the ATP/EPAct eligibility requirements. First, **the law does not provide for coordination across different programs and agencies directly involved in the funding process**. Instead, it leaves the foreign eligibility determination to the Secretary of Commerce (ATP) and the Secretary of Energy (EPAct). In practice, this authority is delegated and implementing officials may interpret and apply the statute in different ways. In the ATP, for example, a less formal process is used to make eligibility determinations. By contrast, the Department of Energy has published a proposed rule (10 CFR Part 600) concerning a general statement of policy to guide DOE officials in determining eligibility.[17] It is therefore possible for the Secretary of Commerce to find, for example, that Japanese affiliates are not eligible to participate in the ATP, and for the Secretary of Energy to find that they are eligible under one or more titles of the Energy Policy Act.

Second, **there is considerable ambiguity in the statutory language**. Several key words and phrases are not defined. For example, the word "company" could mean a single company, several companies forming a team, or a joint venture. The question then arises as to whether all of the companies in a joint venture or team must meet all of the comparable treatment conditions. The degree of ambiguity over the term company was reflected in a DOE issue paper. It stated:

> To which entity or entities should the requirements of section 2306 apply when an application to participate in a covered program involves more than one company? In the case of a teaming arrangement, or joint venture, should the requirements apply to all partners or team members? Should the requirements be applied to all suppliers to program participants? If the provisions of the Act were to be applied to all contracts, should the requirements apply, as well, to all subcontractors?[18]

Another ambiguity is the requirement that the foreign country afford to "United States-owned companies opportunities, comparable to those afforded to any other company, to participate in any joint venture similar to those authorized under this Act." Even though the drafters of the ATP/EPAct language specifically considered and rejected a specific reciprocity clause, the intent of the statute is not evident on its face. Should this counterpart program provision apply to R&D opportunities in general for a given country, or more specifically to R&D opportunities in that country similar to those offered under the ATP or a particular DOE program? Suppose, for example, that a particular country does not fund research in alternative fuels or electric vehicles. In that case, would affiliates from that country be excluded from DOE programs in those and related areas?

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[17] *Federal Register*, Vol. 60, No. 36, Thursday, February 23, 1995, Proposed Rules, pp. 10296-10302.

[18] Issue Paper—EPAct 2306 Limits on Participation by Companies in Certain Department of Energy R&D Programs, May 11, 1994.

Third, it is clear that neither the Department of Commerce nor the Department of Energy has sufficient capability alone to determine if a foreign country is in compliance with the law. To secure this information, the implementing agency must turn to other U.S. agencies, foreign governments, and U.S. embassies for assistance in making the determination. **Whether the implementing agency conducts its own research or not, in practice, the finding of compliance or noncompliance will often depend on application of different assumptions, different methodologies, or different interpretations of the statutory language.**[19]

Implementation of the Comparable Treatment Test

The three comparable treatment provisions were first applied to the ATP through the American Technology Preeminence Act (P.L.102-245). Administrators at the Department of Commerce opted not to use a formal rule-making procedure, but to handle the eligibility determinations for foreign firms on a less formal basis. They did so because they are concerned that a formal rule would tend to extend and delay the application process, adding administrative burdens for both the government and participating companies. Their goal is to shorten the ATP decision process to four months—from receipt of applications to announcement of awards.

At the ATP, proposals from companies are evaluated on technical and business criteria. The question of eligibility arises at the end of the selection process, after the company has become a finalist in the competition. At this point, the country of origin of the foreign affiliate is ascertained, and each of the three comparable treatment provisions is applied.

Applying each of the three provisions, however, poses special challenges to the funding agency or unit of government. First, the funding unit must have access to authoritative information regarding the R&D funding programs, barriers to direct investment, and enforcement of intellectual property rights in a large number of foreign countries. Second, the act of making a foreign eligibility determination removes the eligibility decision from the realm of pure domestic technology policy, making it part of a larger U.S. foreign economic policy. As such, it thus impacts a wide variety of agencies, including the National Economic Council, the United States Trade Representative (USTR), the Departments of State and Treasury, the Office of Science and Technology Policy, and other agencies charged with implementing similar provisions.

To date, the Commerce Department has made 15 findings involving companies from Italy, the United Kingdom, the Netherlands, France, Switzerland, Germany, and Japan. Only Japan has been found not to be eligible under the three-part comparable treatment test, and it was found ineligible on all three counts.[20] The Energy Department has made eligibility determinations under section 2306 on over 50 companies, including two foreign-owned companies with parent companies in Norway and Germany.[21] To date, no company has been found ineligible under section 2306. Each of the comparable treatment provisions is addressed below.

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[19] Program administrators at both the Energy and Commerce Departments agree with this statement, but note that such judgments must be wholly defensible under challenge, requiring extensive accumulation of evidence.

[20] ATP Determination, "Foreign Analysis—Japan," passim.

[21] In addition, the Department of Energy has chosen to use the section 2306 criteria in evaluating eligibility to participate in certain programs that are not covered by section 2306, but are subject to other direction from Congress to evaluate whether the company's participation is in the economic interest of the United States. (E.g., H.R. Conf. Rep. 901, 102d Cong., 2d sess. 60 (1991) which directs DOE to find that a company's participation in the advanced turbine program will be in the economic interest of the United States). In such circumstances, DOE has found that companies with parents located in Switzerland and Australia are eligible under the section 2306 criteria.

1. *The R&D counterpart program provision:* In the last round of ATP awards, foreign affiliates from seven countries made the final selection category. For each of the seven countries, ATP officials sought to determine if the government funded an R&D program similar to the ATP, and if U.S. firms were eligible to participate in that program on a nondiscriminatory basis. To obtain this information they contacted the Science and Technology officers of the corresponding foreign embassy in Washington.

   ATP officials looked for broad comparability, not insisting that the counterpart R&D program be highly similar to the ATP. If the foreign program had written eligibility provisions, these were used as a basis for the determination. If not, ATP officials sought verbal and written assurances from responsible officials that U.S. firms had equal access to the program in question. The ATP also requested a list of U.S.-based firms that had participated in the foreign program(s). In addition, they sought the "opinion of knowledgeable contacts on eligibility and actual practice."[22] Ultimately, ATP officials had to make a judgment call because, in several instances, foreign programs only approximated the ATP, and it would be possible to base a determination on one or more of several programs, none of which was highly similar to the ATP.
2. *The local investment provision:* To determine if U.S. companies have comparable local investment opportunities in a particular foreign country, the ATP relied on two sources: (a) *The 1994 National Trade Estimate Report on Foreign Trade Barriers*, published by the Office of the USTR, and (b) on foreign direct investment data, published by the Bureau of Economic Analysis. If the country appeared to offer national treatment to U.S. investors, as indicated by both sources, a favorable determination was made. In at least one case, France, a judgment call was necessary because France does limit and channel foreign direct investment in important respects.
3. *The IPR provision:* To determine if U.S. intellectual property rights were adequately and effectively protected by a given country, the ATP relied on the *Special 301 Fact Sheet on Intellectual Property*, dated April 30, 1994, published by the Office of the USTR. In addition, ATP officials looked to see if intellectual property rights protections were included as part of the R&D counterpart program for each country. Finally, ATP sought the advice of the U.S. Patent and Trademark Offices and other U.S. government offices as appropriate. Again, a judgment call was necessary because Japan, for example, was not included as a "potential priority foreign country" under Special 301, but only on the "priority watch list."

Implementation of the ATP/EPAct Language

Even though the EPAct and ATP language is virtually identical, the two agencies have taken very different approaches to implementation. In particular, DOE officials believe that a formal set of guidelines is necessary to inform and instruct different DOE program administrators regarding implementation of section 2306. DOE's R&D programs covered by the Act are much larger than those of Commerce, and they are administered by an extensive field organization. In the absence of such a rule, DOE leadership believes that administrators in the field offices may interpret and execute the statute in different ways. They are also concerned that the Department might be inadequately prepared to explain decisions to firms that are ruled ineligible. For this reason, DOE would like to achieve internal consistency as well as consistency across agencies, hopefully involving a carefully coordinated interagency process.[23]

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[22] ATP Determination.

[23] OTA interview with DOE officials.

There are fundamental differences in the implementation challenge facing the two agencies. The EPAct language applies to many different programs conducted in conjunction with several laboratories spread out across the nation. The ATP language applies to only one program which is administered by the National Institute of Standards and Technology. ATP has a fixed single project cycle, whereas projects falling under the EPAct language are administered by different parts of the department, beginning and ending on many different cycles. DOE brings a great variety of nuclear-related and other energy technologies to the table, which can affect multi-billion-dollar global markets in these fields. The ATP does not offer technology to companies. Moreover, there is more money involved at DOE: The EPAct language will affect $2.387 billion in DOE R&D funding, whereas the APT language applies to only one program, funded at $.431 billion.[24]

There are other differences. Unlike ATP, several affected DOE programs are already working with foreign-owned firms in many ways—through procurement, through contracts, through cooperative research and development agreements (CRADAs), and in other relationships involving financial assistance.

Problems in Interagency Coordination

The ATP/EPAct language does not provide for interagency coordination or suggest who should take the lead in implementation. This has resulted in a large measure of bureaucratic interaction and a labored exchange of views in which little has been accomplished. As one DOE official put it, "We talked to the Commerce people endlessly, but could not reach agreement on how to implement their language and ours."[25] The Commerce Department has steadfastly maintained that they do not want or need a set of formal rules to govern implementation of the ATP/EPAct statutes.

Further, Commerce officials did not want DOE to publish a rule governing either the economic interest test or comparable treatment requirements for foreign firms. They are concerned that a rule setting forth an interagency process for determining foreign eligibility might also affect the ATP.

DOE administrators stress that they do not have the in-house expertise to assess accurately the policies and practices of foreign governments with respect to direct investment, R&D funding, and intellectual property protection. For this reason they would like to establish an interagency process, perhaps in connection with the Trade Policy Review Group, to make foreign eligibility determinations which bear on the comparable treatment provisions of section 2306.[26]

The Commerce Department, on the other hand, moved forward, establishing its own process and criteria for determining eligibility consistent with the language of the statute. Commerce has used a wide variety of sources in making its determinations, including extensive data from the Bureau of Economic Analysis, documentation provided by the Science and Technology counselors at U.S. embassies abroad and at foreign embassies in Washington, and other outside sources. In addition, Commerce also consulted widely with other

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[24] For a breakdown of the $2.387 billion figure, see Issue Paper—EPAct 2306 Limits on Participation by Companies in Certain Department of Energy R&D Programs, May 11, 1994, Appendix C: Funding for Secs XX-XXIII of EPAct. At this writing, the ATP program has been included in a recision bill and is forecast to lose 21 percent of its funding for fiscal year 1995, or about $90 million. *Technology Transfer Week* (Vol. 2, no. 14) April 11, 1995, p. 1.

[25] OTA interview with DOE officials.

[26] The Trade Review Group (TPRG) is an Assistant Secretary-level subordinate coordinating group to the Trade Policy Committee (TPC). The purposes of the TPC are: "to assist and make recommendations to the President in carrying out his functions under the trade laws and to advise the USTR in carrying out his functions; to assist the President and advise the USTR on the development and implementation of U.S. international trade policy objectives; and to advise the President and the USTR on the relationship between U.S. international trade policy objectives and other major policy areas." Committee on Ways and Means, U.S. House of Representatives, "Overview and Compilation of U.S. Trade Statutes," 1993 edition, 103d Congress, 1st sess., Jan. 6, 1993, pp. 186-187.

U.S. government agencies, using an interagency process. It has based its determinations, in part, on USTR documents, as described above, and on information provided from agencies such as the State Department and U.S. Patent Office, as cited in its extensive determination documentation.

But the agency-specific, flexible process that Commerce believes is essential is not without problems. In finding some countries eligible to participate in the ATP (Italy, the U.K., the Netherlands, France, Switzerland, Germany) and others ineligible (Japan), **Commerce has taken an independent role in setting foreign economic policy.** It has also set a legal precedent that could invite litigation, particularly if DOE subsequently finds a Japanese company eligible to participate under the EPAct, section 2306. In addition, some business interests would prefer a more formal process, one which gives them greater input to decisions, and they believe, increase consistency and predictability of public policy.[27]

Finally, Commerce did not coordinate its activities closely with offices that have lead responsibility in the area of international investment policy. Responsible officials at the State Department, for example—those negotiating the science and technology agreements, and the "investment basket" under the Framework talks with Japan and the Japan Desk—were not aware that DOC would make a negative determination regarding Japan until after the fact. State Department officials have subsequently proposed formal coordination.[28]

POLICY ISSUES AND OPTIONS

Should There be an Economic Benefits Test?

Three arguments are often adduced in favor of some form of national economic requirement for participating firms. The first is based on the tenet that the location of technology development matters because gains in technology contribute to the national economy. As a nation, the United States must maintain and augment its technology assets on a continuous basis. Technology is a major building block in the competitive position of U.S. companies, both at home and in international markets. It is a cornerstone of the domestic economy, and ultimately, it supports the high standard of living of U.S. citizens. In this view, it makes sense to encourage all firms, both foreign and domestic, to commit to develop and deploy leading edge technology in the United States.

Second, technology development programs, like those subject to the ATP/EPAct language, often involve cost-sharing by a company and the government for new technology development, where the government funds a percentage of the cost of the program. Because tax dollars are used to support these programs, taxpayers have a right to benefit from them. In this view, if the U.S. government funds the U.S. affiliates of foreign-owned firms to develop technology, then government should also ensure that the resulting technology redounds principally to the benefit of the U.S. economy and not to foreign countries. Few constituents would willingly support giving tax dollars to a foreign firm, if that firm took the money abroad, developed a new technology there, and then used the technology to compete against U.S. employers.

Third, the requirement that participating firms contribute to the national economy has become accepted practice in the advanced industrial world. All OECD governments fund technology programs, and most set conditions to ensure that participating firms contribute to the local/national economy.

Those who oppose the application of an economic benefits test believe that such requirements could and might well be constructed to give U.S.-based firms an unfair advantage over the U.S. af-

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[27] Based on OTA discussions with representatives with multinational firms and business groups.

[28] OTA interview with State Department officials.

filiates of foreign-based multinationals. Suppose, they argue, that the test required firms to have significant investment in R&D in the United States. In that case, many more U.S.-based firms would qualify because, as OTA has shown, "multinational enterprises tend to develop core technology at home."[29] That is, we would expect U.S. firms to conduct the bulk of their R&D in the United States, Japanese firms to do so in Japan, and European firms to make R&D investments primarily in Europe. Such a test, they conclude, would tend to be biased against Japanese-based firms, because Japanese investment in the United States is less concentrated in R&D than that of the major European investors. Accordingly, they favor a broad definition of "economic benefit," one which is illustrative in character and which would tend to disqualify few, if any, firms.

1. *If Congress favors an economic benefits test, what are the policy options?* If Congress wishes to apply a benefits test to technology programs more broadly, there are several principles that deserve consideration. First, Congress has constructed the ATP/EPAct test so that it is nationality blind. That is, U.S. affiliates of foreign firms are evaluated using the same criteria that are applied to indigenous companies. This approach could be extended to U.S. technology funding across the board: **By making a nationality blind benefits test applicable to all government research and technology development programs, Congress would lend broad support to the principle of national treatment, and would place the United States in a strong position to lead and negotiate the Multilateral Agreement on Investment (MAI) among the OECD countries.** It would be difficult to challenge such a test under the rules of the World Trade Organization, and foreign governments would find it far more difficult to apply and justify discrimination against U.S. companies.

   Second, **Congress may wish to consider specifying several elements of the economic benefits test more clearly.** Congress could, for example, mandate that companies receiving U.S. technology funds demonstrate a clear prior commitment to the U.S. technology base. Any company that could not point to local R&D facilities sufficient at a minimum to support the project in question would not be eligible. Such a condition would not depart from accepted practice within the OECD. Indeed, some OECD countries like Germany, for example, have added to this a requirement that companies also demonstrate sufficient manufacturing capacity.

   Third, **Congress may wish to require participating firms to conduct U.S.-funded R&D in the United States.** This would encourage firms, both foreign and domestic, to contribute directly to technology innovation in the United States. In recent years, a growing number of foreign affiliates in the United States have found it beneficial to locate and/or invest in R&D here because of the strength of the U.S. technology base and the size of the internal market. A requirement that U.S.-funded R&D be conducted locally would encourage foreign affiliates to do even more.

   Some representatives of industry believe that technology can be developed outside the United States and still benefit the U.S. economy. On that basis, they argue that Congress should not require participating firms to conduct U.S.-funded R&D in the United States. If Congress did permit the use of U.S. funds to develop technology abroad, it would be important to establish a mechanism (with an enforcement procedure) to ensure that technology produced in foreign countries did, in fact, redound primarily to the benefit of the U.S. economy.
2. *One test or many?* Some administrators believe that if there is going to be an economic benefits

[29] *Multinationals and the U.S. Technology Base*, p. 2.

test, it should be made specific to the program in question. In interviews with OTA, most administrators agreed to the need for an economic benefits test, but advocated wide administrative latitude in the application of the test; they are concerned that a rigid set of criteria might block U.S. access to important foreign technologies. In the analysis presented above, it is clear that administrators of the ATP and EPAct have approached the question of foreign eligibility in very different ways. This was possible due to ambiguity in the legislative language and lack of definitions in the relevant statutes.

But widely different interpretations of the conditions of an economic benefits test would tend to defeat the legislative intent and purpose of the test. Indeed, the very existence of the test (as well as comparable treatment conditions that are addressed below) tends to escalate what had formerly been a national technology issue to the level of international negotiation and diplomacy. This effect will be magnified if investment is brought under international rules, either through the OECD under the MAI or more broadly as part of the GATT/WTO process. Accordingly, **if Congress determines it is in the nation's interest to have an economic benefits test, it should take pains to ensure that the test is consistent, unambiguous, and universally applicable**. This would enhance predictability for all applicants, reduce the likelihood of litigation, and increase the coherence of overall U.S. foreign economic policy.

Alternatively, **Congress may wish to specify a clearly formulated interagency mechanism to establish criteria for an economic benefits test.** Congress may also want to consider specifying a lead agency to avoid the lack of interagency coordination detailed above with respect to ATP/EPAct implementation.

3. *How much administrative latitude?* Some degree of administrative flexibility is, nevertheless, necessary if an economic benefits test is to serve the interests of the nation. The point of such a test is, after all, to conform the behavior of firms to the public interest without imposing undue burdens on participating companies.

Situations will arise where it is clearly in the national interest to induce a company to develop a particular technology, or make it available to U.S. firms, even when that company does not have a demonstrable R&D presence in the United States. To meet such a contingency, **Congress may wish to grant limited and specific waiver authority with respect to one or more components of the economic benefits test.** This could be accomplished by empowering the responsible administrator to grant a special dispensation when it is found that participation by the particular company would be in the national interest, even when the company does not meet all elements of the test. In that case, **Congress could make participation by an otherwise ineligible company contingent on its agreement to develop the new technology jointly with at least one eligible partner.**

Should There Be a Comparable Treatment Requirement?

The comparable treatment requirement of the ATP/EPAct language has been the subject of often heated debate. It has extended the process of program implementation at both the Commerce and Energy departments. It has added complications to U.S. foreign economic policy. And it has been the subject of prolonged and unresolved interagency coordination within the United States government.

The debate over this issue is fairly straightforward. Advocates of comparable treatment believe that U.S. companies are disadvantaged in foreign countries that maintain a wide range of discriminatory practices, including barriers (both formal and informal) to trade and investment, lack of comparable access by U.S. subsidiaries abroad to foreign government procurement and technology funding, and inadequate protection of the legal and property rights of U.S. affiliates operating abroad. Even though they may be reluctant to ap-

ply comparable treatment instruments, they argue that to ignore blatant inequalities of competitive opportunity not only damages U.S. industry, but ultimately weakens the global system of trade and investment.

Critics maintain that restrictions on eligibility to U.S. funding, based on national criteria, not only violate the principle of national treatment, but also militate against a more open and liberal world trade and investment environment. They also see maintenance of an open, nondiscriminatory regime for foreign investment and employment in the United States as having a higher priority than open foreign markets; they have, for example, resisted allowing USTR to threaten foreign investments in retaliation against unfair intellectual property rights practices.

Some view the comparable treatment provisions of the ATP/EPAct legislation as little more than protectionism or even mercantilism. They are concerned that a response in kind to discriminatory foreign trade and investment practices could, in fact, legitimize those practices, igniting a series of actions and reactions tending toward global market closure.[30] Others respond to the contrary that the ATP/EPAct language in fact rewards countries that have implemented the principle of national treatment. They point out that with respect to the ATP and the EPAct programs, every country except Japan has passed the comparable treatment test.

In short, the debate over comparable treatment has an ideological dimension that is unlikely to be resolved, especially to the extent that Congress continues to write new comparable treatment provisions into the law and/or maintain existing ones. There is, nevertheless, an increasingly strong body of opinion in the business community that favors keeping technology programs out of the trade policy debate.[31] They believe that trade-related sanctions can impair their ability to form international strategic alliances with foreign companies and/or weaken their access to foreign technology. This view finds little merit in having U.S. government agencies assess the policies and practices of foreign governments. If Congress decides to continue to employ the principle of comparable treatment, however, there are several lessons to be learned from recent history.

1. *If Congress decides to retain comparable treatment, how should compliance or non-compliance be determined?* Implementation of the ATP/EPAct language has demonstrated the need for a consistent means of determining the meaning of the statute and the manner in which it will be implemented. Few, if any, U.S. government agencies have the in-house capability to make comparable treatment determinations, and in any case it may not be appropriate for them to do so because the finding of non-compliance will often involve a *judgment call* that cannot be made on strictly empirical grounds. By finding a country in non-compliance, a U.S. agency is contributing to U.S. international economic policy and affecting the tenor of international relations. Indeed, the European Commission took exception to section 2306 of the EPAct on the ground that it is a violation of national treatment.[32] For these reasons, **if Congress decides to retain comparable treatment provisions or to institute new ones, it**

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[30] This issue is discussed in the first report of OTA assessment of multinational enterprises: U.S. Congress, Office of Technology Assessment, *Multinationals and the National Interest: Playing by Different Rules*, OTA-ITE-569 (Washington, DC: Government Printing Office, September 1993), pp. 15-19.

[31] See letter to the Honorable Ron Brown (and attachment) signed by the presidents of 14 business associations, July 22, 1994.

[32] "The European Commission, while recognizing that seeking to ensure that public funds are spent in the best national interest is a sound and legitimate objective, finds it regrettable that in pursuing such objective, the Energy Policy Act of 1992 deviates from the principle of National Treatment and, therefore, had to be notified to the OECD as another US exception to National Treatment." Delegation of the European Commission, "Comments by the European Commission on DOE's Proposed Statement of Policy with respect to Eligibility Determination for Certain Financial Assistance Programmes," March 24, 1995, p. 1.

may wish to consolidate the finding/determination process in a single agency, the Office of the USTR, because that agency already routinely collects and evaluates information required to make such findings.

In practice, a prototype of this mechanism already exists with respect to the R&D counterpart program, local investment, and IPR provisions of the ATP/EPAct legislation. That is, the USTR publishes its assessment of these and other barriers in the *National Trade Estimate Report*.[33] In addition, the USTR addresses intellectual property inequities in its annual *Special 301 Fact Sheet on Intellectual Property.* **Congress could specify that these documents be used as the basis for a country-by-country determination of compliance or non-compliance** and that USTR publish a non-compliance list in each category on an annual basis.

As a weaker step, Congress could specify that a company will be excluded from participation on the basis that it is foreign-owned only if the government of the parent company is subject to sanctions under section 301(c) of the Trade Act of 1974 for practices covered by the ATP/EPAct language. This approach has been advanced by a number of industry groups and multinational firms.[34] They believe that it would consolidate U.S. trade policy in a single mechanism (section 301(c)), and would provide greater predictability, consistency, and stability for both U.S. and foreign business interests.

At the same time, this approach would weaken the statutory framework governing foreign eligibility because section 301(c) sanctions are rarely applied, and when they are, the time lag between the complaint and the remedy can be a matter of many months and even years.

2. *Could comparable treatment be dropped in favor of an economic benefits test?* The underlying purpose of the comparable treatment provisions in the ATP/EPAct legislation is to reduce (or at least not increase) asymmetries in access to government technology programs, investment opportunity, and intellectual property rights enforcement that have developed between the United States and some of its principal trading partners.

With respect to government technology programs, the response is in-kind—that is, the U.S. denies technology funding to foreign firms whose governments deny technology funding to U.S. firms. But the response to limited investment access and lax intellectual property rights enforcement is different; it is added in with no direct connection to the legislation. Accordingly, **Congress may wish to consider retaining the R&D counterpart program provision, but removing the investment and IPR comparable treatment provisions and, if they are worth retaining, applying them to statutes directly affecting foreign direct investment and the intellectual property rights of foreign-owned firms operating in the United States.**

Moreover, denying foreign firms access to U.S. technology programs based on the behavior of foreign governments in unrelated areas probably will have little or no affect on the investment and intellectual property rights enforcement practices in question. If the overall purpose of U.S. cooperative technology funding is to strengthen the U.S. technology base and enhance indigenous technology development, then a more specific and stronger economic test for participating firms would be more appropriate.

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[33] See United States Trade Representative, *1995 National Trade Estimate Report on Foreign Trade Barriers* (Washington, DC: U.S. Government Printing Office, 1995), pp. 1-2.

[34] National Treatment Coalition, "Comment in Response to Department of Energy Notice of Proposed Rulemaking: Financial Assistance Rules: Eligibility Determinations for Certain Financial Assistance Programs, Docket No. PO-RM-95-101," April 24, 1995, pp. 6-7.

Alternatively, it may be possible and appropriate to elevate comparable treatment provisions from the ATP/EPAct legislation to the level of multilateral negotiation, making them conditional on binding agreements with key foreign countries. Such an approach, if successful, could remove substantial impediments to the administration of U.S. technology programs and at the same time address the concerns that prompted Congress to legislate special eligibility requirements for foreign firms.

3. *Could comparable treatment be handled in the Multilateral Agreement on Investment (MAI)?* The MAI is a U.S.-led initiative to remove existing investment barriers among the OECD countries. It would include equal treatment for investors, freedom from performance requirements, ability to transfer investment-related funds, and binding international arbitration of disputes.[35] At present there is no agreement, even within the United States government, as to whether or not an MAI should address questions of comparable treatment related to national R&D and technology funding programs.

But because it concerns the operations of foreign affiliates, the MAI is potentially a possible and logical place to ensure comparable treatment in international access to government-funded technology programs. This could be accomplished by language requiring signatory governments to ensure equal access to competition for technology funding to foreign-owned and domestic firms. All signatory governments could be required to cease eligibility practices that discriminate against foreign firms, making comparable treatment provisions multilateral instead of unilateral as they are in existing legislation.

Some observers oppose the idea of moving comparable treatment provisions from national legislation (such as the ATP/EPAct) to the level of multilateral treaty. They point out that it would be very difficult to enforce such a treaty, and are concerned that the United States not remove existing comparable treatment provisions in existing law prior to negotiating a treaty with adequate enforcement provisions.

[35] Office of the United States Trade Representative, "Multilateral Investment Agreement," February 22, 1995, p. 1.

APPENDIX A: FOREIGN ELIGIBILITY STATUTES

1. The ATP Eligibility Language

15 U.S.C. § 278n, P.L. 102-245—"American Technology Preeminence Act"

"(9) A company shall be eligible to receive financial assistance under this section only if—

"(A) the Secretary finds that the company's participation in the Program would be in the economic interest of the United States, as evidenced by investments in the United States in research, development, and manufacturing (including, for example, the manufacture of major components or subassemblies in the United States); significant contributions to employment in the United States; and agreement with respect to any technology arising from assistance provided under this section to promote the manufacture within the United States of products resulting from that technology (taking into account the goals of promoting the competitiveness of United States industry), and to procure parts and materials from competitive suppliers; and

"(B) either—

"(ii) the Secretary finds that the company is incorporated in the United States and has a parent company which is incorporated in a country which affords to United States-owned companies opportunities, comparable to those afforded to any other company, to participate in any joint venture similar to those authorized under this Act; affords to United States-owned companies local investment opportunities comparable to those afforded to any other company; and affords adequate and effective protection for the intellectual property rights of United States-owned companies".

2. The EPAct Eligibility Language

42 U.S.C. § 13525—"Energy Policy Act of 1992"

Sec. 2306. Limits on Participation By Companies.

A company shall be eligible to receive financial assistance under this section only if—

(1) the Secretary finds that the company's participation in the Program would be in the economic interest of the United States, as evidenced by investments in the United States in research, development, and manufacturing (including, for example, the manufacture of major components or subassemblies in the United States); significant contributions to employment in the United States; and agreement with respect to any technology arising from assistance provided under this section to promote the manufacture within the United States of products resulting from that technology (taking into account the goals of promoting the competitiveness of United States industry), and to procure parts and materials from competitive suppliers; and

(2) either—

(B) the Secretary finds that the company is incorporated in the United States and has a parent company which is incorporated in a country which affords to United States-owned companies opportunities, comparable to those afforded to any other company, to participate in any joint venture similar to those authorized under this Act; affords to United States-owned companies local investment opportunities comparable to those afforded to any other company; and affords adequate and effective protection for the intellectual property rights of United States-owned companies.

3. The TRP Eligibility Language

10 U.S.C. § 2491, P.L. 102-484—"Defense Authorization Legislation"

"(9) The term 'eligible' firm means a company or other business entity that, as determined by the Secretary of Commerce—

"(A) conducts a significant level of its research, development, engineering, and manufacturing activities in the United States; and

"(B) is a company or other business entity the majority ownership or control of which is by United States citizens or is a company or other business of a parent company that is incorporated in a country the government of which—

"(i) encourages the participation of firms so owned or controlled in research and development consortia to which the government of that country provides funding directly or provides funding indirectly through international organizations or agreements; and

"(ii) affords adequate and effective protection for the intellectual property rights of companies incorporated in the United States.

Amended by P.L. 103-160, the Defense Authorization Legislation for FY 1994, which added the following

Sec. 1317. Conditions on Funding of Defense Technology Reinvestment Projects.

(a) BENEFITS TO UNITED STATES ECONOMY—In providing for the establishment or financial support of partnerships or other cooperative arrangements under chapter 148 of title 10, United States Code, using funds made available under section 131(a), the Secretary of Defense shall ensure that the principal economic benefits of such partnerships and other arrangements accrue to the economy of the United States.