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**The R&D Tax Credit in the New Economy**  
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**Policy Goals Underlying the R&D Tax Credit**

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## **Introduction**

This outline focuses on the policy underlying the federal research tax credit as originally enacted and as subsequently modified. To this end, legislative histories, congressional testimony, and GAO, OTA and CRS reports are used. The identification of policy goals underlying the credit is also accomplished by reviewing the elements of the research credit calculation.

This outline does not cover the details of the terminology used in calculating the credit or identifying “qualified research.” Instead, it is assumed that the reader is familiar with the general operation of the research tax credit. In addition, this outline focuses on the legislative background to the credit, and does not address administrative and judicial authority. While many policy issues have been raised by the IRS and courts regarding the research tax credit, those issues are covered by other panels.

## **Policy as Evident from Legislative Histories and Reports**

### **1981—Origination of the Research Tax Credit**

A credit for increasing research activities was added to the federal income tax by the Economic Recovery Tax Act of 1981 (ERTA) (P.L. 97-34, 8/13/81).<sup>1</sup> ERTA was part of same tax act that created ACRS to provide an “investment stimulus” necessary for economic expansion. ERTA has been described as a “tax reduction program [to] help upgrade the nation’s industrial base, stimulate productivity and innovation

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<sup>1</sup> H.R. 4242 or H.R. 4260? The Conference Committee adopted the House Ways and Means Committee version of the research credit. However, the House had no report on that version. As explained by the IRS in TAM 8835002 (4/22/88), footnote 2:

H.R. Rep. No. 201, 97th Cong., 1st Sess. (1981), which at pages 109 through 126, had discussed a new section 44F of the Code, was written in relation to a bill that was superseded in the House by the Hance-Conable bill. It was this Hance-Conable bill, not the bill in respect of which H.R. Rep. No. 201 was written, that was passed by the House. Since the earlier proposed section 44F contained provisions that are not found in the version of the section 44F that was finally adopted by the House, the applicability of H.R. Rep. No. 201 to any discussion of section 44F of the Code is debatable. Nevertheless the Joint Committee on Taxation adopted H.R. Rep. No. 201 in its discussion of section 44F in its “blue book” on the Economic Recovery Tax Act of 1981. In addition, the proposed regulations under section 44F and section 174, published at 48 FR 2799 (1983), are based on H.R. Rep. No. 201.

throughout the economy...” In 1981, Congress was “concerned that the performance of the economy had fallen far below its potential.”<sup>2</sup>

The research credit was originally added as IRC §44F. It was renumbered as IRC §30 by the Deficit Reduction Act of 1984 and finally, renumbered as §41 by the Tax Reform Act of 1986. The credit was set to expire on December 31, 1985 so that Congress could study the effectiveness of the credit before making it a permanent part of the law. While several modifications (and extensions) have been made to the credit by later tax acts, a fair amount of the credit in place today, particularly the types of costs that are eligible for the credit and its incremental nature, stems from the 1981 enacting legislation.

### **Why Added**

A research tax credit was added to the federal income tax law in 1981 to encourage companies to initiate and expand research programs.<sup>3</sup> The “reasons for change” as provided in the Joint Committee on Taxation’s *General Explanation to the Economic Recovery Tax Act of 1981* follows.<sup>4</sup>

#### ***Reasons for Change***

##### ***Need to reverse decline in research activities***

Research and experimentation are basic activities that must precede (1) the development and application to production of new techniques and equipment, and (2) the development and manufacture of new products. In recent years, the Congress concluded, spending for these purposes had not been adequate.

In the case of research and development activities conducted by business, company-financed and Federal expenditures over the 12-year period 1968-1979 remained at a fairly stable level in real terms, fluctuating between \$19 and \$22.8 billion in constant dollars. Relative to real gross national product, such expenditures for company research declined from 2.01 percent in 1968 to 1.58 percent in 1975, essentially remaining at that level since then.

Aggregate research and development spending in this country has experienced a similar period of decline. In 1967, total expenditures reached a high of 2.91 percent of GNP before declining over ten years to 2.26 percent in 1977, and then increasing to an estimated 2.30 percent in 1980. If military and space research expenditures are subtracted from the total, the “civilian” research/GNP ratio for the United States is 1.5 percent, compared with 1.9 percent for Japan and 2.3 percent for West Germany.

##### ***Incentive for increased research spending***

In order to reverse this decline in research spending by industry, the Congress concluded that a substantial tax credit for incremental research and experimental expenditures was needed to overcome the reluctance of many ongoing companies to bear the significant costs of staffing and supplies, and certain equipment expenses such as computer charges, which must be incurred to initiate or expand research programs in a trade or business. While such costs have characteristics of investment activity, the relationships between expenditures for research and subsequent earnings often are less directly

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<sup>2</sup> General Explanation to the Economic Recovery Tax Act of 1981 (Blue Book) prepared by the staff of the Joint Committee on Taxation, Section III.

<sup>3</sup> S. Rpt. No. 97-144, 97th Cong., 1st Sess (1981), *reprinted in* 1981 U.S.C.C.A.N. 105, 181 to 182. The Conference Report to ERTA can be found at 1981-2 C.B. 495, the House Report at 1981-2 C.B. 357, and the Senate Report at 1981-2 C.B. 412. An explanation of the credit as enacted can also be found at Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 31, 1981, pages 117 to 137.

<sup>4</sup> Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 31, 1981, pages 119 to 121.

identifiable, and many businesses have been reluctant to allocate scarce investment funds for uncertain rewards.

The Congress believed that the provisions of the Act, which are designed to stimulate a higher rate of capital formation and increased productivity, appropriately include incentives for greater private activity in research by operating businesses. The new credit applies only to increases in qualified research expenditures, in order to encourage enlarged research efforts by companies which already may be engaged in some research activities. Because of difficulties for taxpayers and the Internal Revenue Service in distinguishing research expenditures from nonresearch expenditures, and in order to limit the credit to principal types of research expenditures which distinctly reflect the extent of increased research activities, the credit is limited to certain direct wage, supply, and equipment research expenditures (or a specified percentage of contract research expenditures). The credit is not allowed for other types of research expenditures, or for indirect, administrative, or overhead expenditures.

#### ***Limitations on availability and use of credit***

The Congress determined that the new credit is to be available only for research expenditures paid or incurred in carrying on a trade or business of the taxpayer, and that (with one exception, described below) the “carrying on” test for purposes of the new credit is the same as for purposes of section 162. For example, it is intended that the credit generally is not available to a limited partnership (or to any partners in such partnership, including a general partner which is an operating company) for partnership expenditures for “outside” or contract research intended to be transferred by the partnership to another (such as to the general partner) in return for license or royalty payments. Also under the “carrying on” test, the Congress intended that research expenditures of a taxpayer are eligible for the credit only if paid or incurred in a particular trade or business already being carried on (within the meaning of sec. 162) by the taxpayer.

As the only exception to the rule that the “carrying on” test for purposes of the new credit is the same as for purposes of section 162, the Congress intended that the Treasury Department is to issue regulations, for credit purposes only, which will allow the credit in the case of a research joint venture between taxpayers which both (1) themselves satisfy the carrying on test (e.g., the research must be in a particular trade or business already being carried on by the taxpayer) and also (2) themselves are entitled to the research results.

Furthermore, in cases where an organization conducting research is deemed to be carrying on a trade or business under these rules (so that the credit is available for incremental research expenditures), the Congress determined that individual taxpayers with interests in the organization should not be able to utilize pass-throughs of the credit to offset tax on income from unrelated sources. Thus, the Act provides that individuals (including partners and subchapter S shareholders) to whom the credit is properly allocable may use the credit in a particular year only to offset the amount of tax attributable to that portion of the individual’s taxable income which is applicable or apportionable to such interest. (A 15-year carryover is allowed under the Act for any unused credit.) Also, the Act provides that allocations of the credit among partners, etc. must be in accordance with rules prescribed in Treasury regulations.

#### ***“Sunset” provision***

The new credit for certain incremental research expenditures expires after 1985. Accordingly, the Congress will have an opportunity to evaluate the operation and efficacy of the new credit.

For example, the Congress will be able to evaluate whether the credit operates to stimulate additional research expenditures, or simply rewards increased research expenditures which would have been made in the absence of a credit; whether the categories of qualifying research expenditures should be broadened or narrowed; whether taxpayers and the Internal Revenue Service have been able accurately to distinguish qualifying research expenditures from nonqualifying research-related expenditures, such as indirect, overhead, or administrative wage expenditures, and from nonresearch expenditures, such as costs

of market research, quality control, or production; whether the base period computation rules are appropriate; and whether the restrictions and limitations on the availability and use of the credit (e.g., the “carrying on” requirement) have been effective to accomplish the Congressional intent.

### What is *Qualified Research*?

As originally enacted, §44F(d) defined “qualified research” as having the same meaning as the term research or experimental under §174. However, the following research was excluded: 1) research conducted outside the U.S., 2) research in the social sciences or humanities, and 3) funded research.

In 1981, the definition of R&E in §174 was not as specific as currently found in Reg. §1.174-2. Instead, it just referred to research in the laboratory or experimental sense.

“Sec. 1.174-2 Definition of research and experimental expenditures.

(a) In general. (1) The term "research or experimental expenditures", as used in section 174, means expenditures incurred in connection with the taxpayer's trade or business which represent research and development costs in the experimental or laboratory sense. The term includes generally all such costs incident to the development of an experimental or pilot model, a plant process, a product, a formula, an invention, or similar property, and the improvement of already existing property of the type mentioned. The term does not include expenditures such as those for the ordinary testing or inspection of materials or products for quality control or those for efficiency surveys, management studies, consumer surveys, advertising, or promotions. ...”

House Report No. 97-201 to ERTA (H.R. 4242) (version not adopted – see footnote 1 earlier), stated that for purposes of the new credit, “qualified research expenditures means amounts paid or incurred by the taxpayer in carrying on any trade or business of the taxpayer—(A) for research for the purpose of discovering information which may be potentially useful either (i) in the development of a new business item for the taxpayer or (ii) in bringing about a significant improvement in an existing business item of the taxpayer, or (B) in application of results obtained by research to develop a plan or design either (i) for a new business item for the taxpayer or (ii) for a significant improvement in an existing business item of the taxpayer.”<sup>5</sup>

The version of §44F adopted by Congress in ERTA refers only to §174 to define qualified research. Per the Conference Report: “Subject to certain exclusions, the [House] bill adopts the definition of research as used for purposes of the special deduction rules under section 174.”<sup>6</sup>

Further explanation of the meaning of “qualified research” as used in §44F enacted by ERTA is provided by the Tax Court in the 1991 case, *TSR, Inc. v. Commissioner*. An excerpt follows:<sup>7</sup>

“*The 1981 Legislative History of Section 44F*

The legislative history regarding the exclusion of expenditures for research in the social sciences and humanities from the section 44F credit indicates that Congress intended the credit to apply only to technological or scientific research. In explaining this exclusion, the House report states that "the credit is not available for any activity in the social sciences or humanities (including the arts) \*\*\* . \*\*\* to be eligible for the credit, the research *must* be performed in a field of laboratory science (such as physics or biochemistry), engineering, or technology." H. Rept. No. 97-201 (1981), 1981-2 C.B. 352, 360 (emphasis added). This indicates that the exclusion was intended to limit the credit to scientific or technological research.<sup>6</sup>

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<sup>5</sup> House Rpt. No. 97-201, 1981-2 C.B. 357.

<sup>6</sup> Conf. Rept. No. 97-215, 1981-2 C.B. 495.

<sup>7</sup> *TSR, Inc. v. Commissioner*, 96 T.C. 903, 916 - 919 (1991).

<sup>6</sup> We note that the House Ways and Means Committee's proposed statutory definition of "qualified research" was not adopted. Instead, the definition proposed by the Senate Finance Committee (i.e., that qualified research has the same meaning as research and experimental has under sec. 174) was adopted. Accordingly, we have placed no reliance on the House Ways and Means Committee's definition of "qualified research." See Black, "The Research Credit: R & D in the Post-ERTA Period," 41st Annual N.Y.U. Tax Inst. 12-1, 12-6 through 12-8 (1983). Nonetheless, the specific statutory exclusion from the sec. 44F credit for research in the social sciences and humanities was part of the House bill which was adopted. Thus, reliance on the above-quoted portion of the House report is appropriate.

The Senate Finance Committee report and the transcripts of the 1981 hearings held on section 44F are consistent with a finding that Congress intended the credit to apply to scientific and technological research. S. Rept. No. 97-144 (1981), 1981-2 C.B. 412, 438-439; Hearings on S. 98 before the Senate Comm. on Finance, 97th Cong., 1st Sess. 2-108, 393-401 (1981); Hearings on H.R. 1539 before the House Ways and Means Comm., 97th Cong., 1st Sess. 2021-2077 (1981).<sup>7</sup> The House and Senate hearings prior to the adoption of section 44F indicate that Congress wanted to encourage investment in high-tech research and development. Only representatives from high-tech industries<sup>8</sup> or representatives from universities which also had an interest in increased scientific and technological research testified at the hearings. Hearings on S. 98, *supra*; Hearings on H.R. 1539, *supra*. These hearings focused on the benefits that the section 44F credit would confer on technologically intensive industries. The testimony highlighted the need to stimulate research and development in the high-tech industries in order to stimulate growth in these industries. Moreover, the witnesses testified that the technological innovations made by high-tech industries in turn benefited the economy in general. Finally, the members of the high-tech industries testified that a tax credit would enhance their ability to compete with foreign competitors.

<sup>7</sup> Statements at committee hearings have been considered as aids in determining legislative intent. 2A Sands, Sutherland Statutory Construction, sec. 48.10, p.318 (4th ed. 1984). For example, see *Regan v. Wald*, 468 U.S. 222, 238 (1984).

<sup>8</sup> Witnesses on behalf of the American Electronics Association, the Semiconductor Industry Association, the Scientific Apparatus Makers Association, Sperry Corporation, the Electronic Industries Association, the Computer & Business Equipment Manufacturer's Association, the Alliance for American Innovation testified before the Committees.

The Senate and House reports indicate that one reason Congress adopted the section 44F credit was its concern that the decline in investment in research and development had adversely affected this country's economic growth, productivity gains, and ability to compete in world wide markets. S. Rept. No. 97-144, *supra*, 1981-2 C.B. at 439; H. Rept. No. 97-201, *supra*, 1981-2 C.B. at 358. Congress' concern with economic growth, productivity gains, and the ability to compete in world markets suggests that Congress intended for the credit to apply to the type of research that would result in a new industrial product, process, or machine, the development of which would enhance these aspects of our country's economy. We recognize that petitioner's research was in connection with the development of a new product and, to that extent, it increased economic growth. However, the same can be said for research in connection with the development of other products which clearly do not qualify for the section 44F credit. For instance, an author may conduct research on a novel. This is research in connection with a literary project and, therefore, is not creditable. This is true despite the fact that the research results in a new product which increases economic growth. In short, just because the research is in connection with the development of a new product does not necessarily mean that the research qualifies for the credit.

As previously discussed, the 1981 House report indicated that qualified research was restricted to that conducted in "laboratory science (such as physics or biochemistry), engineering, or technology." H. Rept. No. 97-201, *supra*, 1981-2 C.B. at 360. Petitioner argues that the language in the 1981 House Ways and Means Committee Report should be interpreted broadly. Specifically, petitioner argues that a broad interpretation of the word "technology" is necessary in order to further Congress' stated objective of stimulating investment in research and development. This interpretation is inconsistent with the fact that Congress chose to limit the credit to only certain types of research. The limited scope of the section 44F credit indicates that Congress did not intend to stimulate investment in all types of research. In light of the limitations placed on the availability of the credit, it is hard to imagine that Congress intended for the credit to be applied as broadly as petitioner argues.

"Technology" is commonly defined as "the application of scientific knowledge to practical purposes in a particular field." Webster's Third New International Dictionary, *supra* at 2348. This commonly understood meaning of technology is also illustrated by a subsequent amendment to the research credit provision of the Code. In 1986, Congress amended the definition of "qualified research" to specifically restrict it to research that is "technological in nature." Tax Reform Act of 1986, Pub. L. 99-514, sec. 231, 100 Stat. 2085, 2173-2180.

Congress did not statutorily define "technological" in the 1986 amendment. However, the legislative history to the 1986 amendment indicates that Congress had an understanding of the term "technological" and believed the determination of whether research was "technological in nature" –

depends on whether the process of experimentation utilized in the research fundamentally relies on principles of the physical or biological sciences, engineering, or computer science – in which case the information is deemed technological in nature – or on other principles, such as those of economics – in which case the information is not to be treated as technological in nature. \*\*\* [S. Rept. No. 99-313 (1985), 1986-3 C.B. (Vol. 3) 1, 696; see also H. Rept. No. 99-426 (1985), 1986-3 C.B. (Vol. 2) 1, 180.]

This meaning of "technological" is consistent with the common understanding of the word "technology" and further buttresses our finding that the section 44F credit is limited to research involving the natural and physical sciences.

The Treasury Department recently adopted final regulations on section 44F. T.D. 8251, 1989-1 C.B. 3. Under these regulations, the exclusion from the credit for research in the social sciences and humanities "encompasses all areas of research other than research in a field of laboratory science (such as physics or biochemistry), engineering or technology." Sec. 1.41-5(c), Income Tax Regs. These regulations are consistent with the legislative history of section 44F. Specifically, these regulations apply the exclusion for research in the social sciences and humanities in the same manner prescribed by the previously referred to House report. H. Rept. No. 97-201, *supra*, 1981-2 C.B. at 360. Under these regulations, research that is not in the fields of laboratory science, engineering, or technology does not qualify for the credit."

Observations: The basis of "qualified research" used in §44F as originally enacted referred to §174 – research in the experimental or laboratory sense. Reg. §1.174-2 which clarified/expanded the definition of R&E (this regulation added the phrase to eliminate uncertainty) was not finalized until 1994. Arguably, the terms "experimental or laboratory sense" implies "technology" and "sciences" and possibly, quite broadly. The addition of more terms to define "qualified research" in 1986 (see later discussion), define "qualified research" for the research credit, rather than R&E under §174.

### **Computer Software Development Costs**

The Joint Committee on Taxation's General Explanation to ERTA (Blue Book) specifically discusses software development costs.<sup>8</sup> Generally, such costs qualify for the credit. However, while the Blue Book mentions Rev. Proc. 69-21 on the treatment of software costs, it adds language that does not appear in Rev. Proc. 69-21.

The [IRS] has taken the position that certain costs of developing computer software may be treated in a manner similar to costs incurred in product development which are subject to section 174 deduction elections (Rev. Proc. 69-21, 1969-2 C.B. 303). For this purpose, the cost of developing computer software means costs incurred in developing new or significantly improved programs or routines that cause computers to perform desired tasks (as distinguished from other software costs where the operational feasibility of the program or routine is not seriously in doubt).

For purposes of the new credit, the Congress intended that otherwise qualifying types of expenditures (for example, direct wage expenditures) which are part of the costs of otherwise qualifying research for the development of new or significantly improved computer software are to be eligible for the credit to the extent that such expenditures (1) are treated as similar to costs, incurred in product research or experimentation, which are deductible as research or experimental expenditure under section 174; (2) satisfy the requirements of new section 44F which apply to research expenditures, including the trade or business requirement; and (3) do not fall within any of the specific exclusions

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<sup>8</sup> The Blue Book text is taken from House Rpt. 97-201, 1981-2 C.B. 360. See footnote 1, *supra*.

in new section 44F. That is, expenditures for developing new or significantly improved computer programs which otherwise would qualify for the new credit are not to be disqualified solely because such costs are incurred in developing computer “software”, rather than in developing “hardware.”<sup>9</sup>

Queries: What does “For this purpose” in the first paragraph refer to – new §44F or Rev. Proc. 69-21? That is, is the legislative history making an inference that software development as used in Rev. Proc. 69-21 refers to development of new or significantly improved programs, or is that a new requirement being added for research credit purposes?

The Conference Report to ERTA<sup>10</sup> does not elaborate on the above language and it does not appear that it was adopted (although it appears in the Blue Book).<sup>11</sup> What is the significance, if any, of the above Blue Book language?

In the 1970's and 1980's, the IRS expressed some concern as to whether the rule which allows software development expenditures to be accounted for under the §174 R&E rules was too broad.<sup>12</sup> As explained in a 1971 General Counsel Memorandum (GCM):

“[W]e see no legal basis for the adoption in Rev. Proc. 69-21 of rules "similar to those in section 174." ... The intent of section 174, according to the Tax Court, is to limit deductions to those expenditures of an investigative nature expended in developing the concept of a model or product. *Martin Mayrath*, 41 T.C. 582 (1964).

It is clear that the setting up of a payroll system or a customer billing system, both examples of software development, is not investigative or experimental in a laboratory senses. It is for this reason, apparently, that section 3 of Rev. Proc. 69-21 refers to section 174 of the Code by way of analogy but does not use that section as direct authority for allowing taxpayers to choose to expense their software costs currently. At the same time, however, section 3 of Rev. Proc. 69-21 does state that the "costs of developing software \*\*\* in many respects \*\*\* resemble the kind of research and experimental expenditures that fall within the purview of section 174 \*\*\*."<sup>4</sup>

If, as implied in Rev. Proc. 69-21, software development costs do not qualify for treatment directly under section 174 but resemble research and experimental expenditures, then the legislative history of section 174 supports our conclusion that some portion of these costs should be capitalized. ... The Congressional reports make clear, however, that in the absence of section 174 substantial amounts of research and experimental

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<sup>9</sup> Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 31, 1981, page 124. Rev. Proc. 69-21 has been replaced by Rev. Proc. 2000-50, 2000-52 I.R.B. 601, issued in December 2000.

<sup>10</sup> Conf. Rpt. 97-215, 1<sup>st</sup> Session, 1981-2 C.B. 495.

<sup>11</sup> As noted in *United Stationers, Inc. v. U.S.*, 99-1 USTC ¶50,136, 82 AFTR2d 98-7488 (7th Cir.): “ERTA adopted section 174's definitions of “research” and “experimentation” but failed to specifically indicate how the credit applied to computer software development.”<sup>1</sup>

<sup>1</sup> The House Report on the ERTA research credit indicated that the credit would only apply to expenses for “developing new or significantly improved programs or routines that cause computers to perform desired tasks (as distinguished from other software costs where the operational feasibility of the program or routine is not seriously in doubt).” H. Rep. No. 97-201, at 114 (1981). The Conference Report did not, however, include these software guidelines. See H. Conf. Rep. No. 97-215, at 223 (1981).

<sup>12</sup> GCMs 34681 (11/12/71), 36053 (10/9/74), and 38618 (1/23/81); also, proposed income tax reg. §1.174-2(a)(6), PS-002-89, 1989-1 C.B. 1058 (software examples not included in final regulations). In GCM 38618, the rationale given for rejecting Rev. Proc. 69-21's treatment of software development costs as R&E was because "common examples of computer software, such as, setting up payroll systems or billing systems, were not investigative or experimental in a laboratory sense." The IRS proposed that software development costs generally be capitalized under IRC §263. If a determinable useful life could be shown for the created software, the taxpayer could amortize it over that life. If the software development costs were "investigative or experimental in a laboratory sense," they could be treated as R&E costs under §174.

expenditures would be capitalized. Since Rev. Proc. 69-21 refers only to rules similar to section 174, it does not sufficiently legitimize the current deduction of a capital expense.”<sup>13</sup>

<sup>4</sup> Another criticism of the reference in Rev. Proc. 69-21 to rules "similar" to section 174 is that it gives a taxpayer no basis for determining which rules will be considered "similar". For example, revenue Ruling 71-248, I.R.S. 1971-23, 9, held that since section 1.174-3(a) of the regulations permits research and experimental expenditures to be treated on a project-by-project basis, software costs may be similarly handled. On the other hand, the proposed revenue ruling on the case before us hold that section 1.174-2(a)(2) of the regulations, relating to research and experimental costs incurred on a taxpayer's behalf, is not one of the "similar" rules made applicable to software by Rev. Proc. 69-21. A memorandum in the administrative file for Rev. Rul. 71-248 reveals, without giving reasons, that these contradictory decisions were made at the same conference in April, 1970.

Finally, in 1983 the IRS stated in yet another GCM that it would continue to allow software development expenditures to be treated as §174 expenditures.

“Our position has been that computer software costs must be capitalized except for certain limited situations, such as, if the costs are incurred in developing prototype computer software or if the costs are recurring costs of short-lived computer software. In G.C.M. 34681 we recognized, however, that there is much to be said from the standpoint of administrative policy in reaching the result of Rev. Proc. 69-21. This is because of the peculiar nature of the software industry.

The recent release [IR-83-71 (4/19/83)] makes clear that the Service intends to continue to allow computer software development costs to be currently deducted or amortized as provided in Rev. Proc. 69-21. To the extent G.C.M.s 34681, 36053, and 38618 indicated that computer software costs must be capitalized, they are modified.”<sup>14</sup>

Queries: What is the significance, if any, of the above statements with respect to when software development costs qualify for the research tax credit? What more do the TRA’86 changes and legislative history add to the determination of when software development costs qualify for the research tax credit?

### **Basics of the Original Research Credit Computation**

As added by ERTA, the research tax credit could be generated for qualified research expenditures paid or incurred after June 30, 1981 and before January 1, 1986.

- Credit = 25% x (qualified research expenses - base period research expenses).
- Qualified Research Expenses (QRE): In-house research expenses (wages, supplies, amount paid or incurred for right to use personal property in conduct of qualified research) + Contract expenses (65% of amount paid or incurred to any person for qualified research, including certain basic research by colleges, universities and certain research organizations if pursuant to a written research agreement).
- Base period research expenses: Average of QRE for each year in the base period which consisted of the 3 tax years immediately preceding the tax year for which the credit was being calculated; thus, the credit was calculated based on a rolling average of prior year research expenditures.
- Minimum base period research expense - could not be less than 50% of QRE for the credit year.

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<sup>13</sup> GCM 34681 (11/12/71).

<sup>14</sup> GCM 38996 (6/8/83).

- Qualified research only included that incurred in carrying on a trade or business, as defined for §162 purposes. This is a narrower application than under §174 which allows for a current deduction of R&E expenditures paid or incurred *in connection with* the taxpayer's trade or business (emphasis added).
- Subject to limitation based on income tax liability less certain other nonrefundable credits.
- Unused credit could be carried back 3 years and forward 15 years.

#### **Policy Points**

- The research credit is intended to:
  - encourage businesses to incur costs for research projects despite the reluctance owing to uncertain rewards and significant costs.
  - serve as an incentive to stimulate productivity to lead to greater private activity in research.
  - address the decline in R&D activities in the U.S. that adversely affect economic growth and competitiveness in world markets.
  - encourage taxpayers to conduct research in the U.S.
- The rationale for an incremental credit is that it does not reward research that would have been done anyway.

### **1986—First Extension + Tightening of the Definition of Qualified Research**

The Tax Reform Act of 1986 (P.L. 99-514) modified and extended the research tax credit through December 31, 1988. Modifications included reduction of the credit rate from 25% to 20%, clarification of when computer software development costs qualify for the credit, change in the credit calculation for payments to qualified organizations, and tightening of the definition of qualified research because Congress thought the definition had been applied too broadly by taxpayers.

The House and Senate Committee reports to TRA '86 provide the following with respect to the purpose of the credit and the tightening of the definition of qualified research.

When the incremental research credit was enacted in 1981, the Congress expressed serious concern about the then substantial relative decline in total U.S. expenditures for research and experimentation. The purpose of enacting the credit was to encourage business firms to perform the research necessary to increase the innovative qualities and efficiency of the U.S. economy. An expiration date for the credit was deemed desirable in order to enable the Congress to evaluate the operation of the credit, and to determine whether it should be extended and what modifications would be necessary to make the credit more effective.

...

The committee believes that the definition has been applied too broadly in practice, and some taxpayers have claimed the credit for virtually any expenses relating to product development. According to early data on the credit, the Treasury has reported, many of these taxpayers are in industries that do not involve

high technology or its application in developing technologically new and improved products or methods of production.<sup>15</sup>

The following explanation for the changes made by the TRA '86 is from the 1986 Blue Book.<sup>16</sup>

### ***Reasons for Change***

*Three-year extension; reduction in rate of credit.*--When the incremental research credit was enacted in 1981, the Congress expressed serious concern about the then substantial relative decline in total U.S. expenditures for research and experimentation. The purpose of enacting the credit was to encourage business firms to perform the research necessary to increase the innovative qualities and efficiency of the U.S. economy. An expiration date for the credit was deemed desirable in order to enable the Congress to evaluate the operation of the credit, and to determine whether it should be extended and, if so, what modifications would be necessary to make the credit more effective.

The Congress concluded that an additional three-year extension of the credit is desirable in order to obtain more complete and comprehensive information to evaluate whether the credit should be further extended or modified. In the context of the base broadening and rate reduction provisions of the Act, and the continued allowance of full expensing of research expenditures, the credit rate is reduced to 20 percent.

*Eligibility of certain computer-use costs.*--Under prior law, expenditures for renting research equipment were eligible for the credit, but depreciation allowances for purchased research equipment were not. The Congress believed that such inconsistent treatment should not be continued, and that the taxpayer's investment decision to purchase or lease should not be skewed by availability of the credit. The Act makes such rental costs, etc. ineligible for the credit, except for certain payments by the taxpayer to another person for the use of computer time in research. Continued eligibility for the latter payments is intended to benefit small businesses that cannot afford to purchase or lease their own computers for research purposes, and hence is intended to apply where the taxpayer is not the principal user of the computer.

*Research definition for credit purposes.*--After reviewing available information and testimony on the actual use of the credit to date, the Congress concluded that the statutory credit provision should set forth an express definition of qualified research expenses for purposes of the credit. The Congress believed that the definition has been applied too broadly in practice, and some taxpayers have claimed the credit for virtually any expenses relating to product development. According to early data on the credit reported by the Treasury Department, research by these taxpayers often does not involve any of the attributes of technological innovation.

Accordingly, the Act targets the credit to research undertaken for the purpose of discovering information that is technological in nature and when applied is intended to be useful in developing a new or improved business component for sale or use in carrying on the taxpayer's trade or business. In addition, research is eligible for the extended credit only when substantially all the activities undertaken in developing or improving the business component constitute elements of a process of experimentation relating to functional aspects of the business component. The Act provides exclusions from the credit for certain research or nonresearch activities, and limits allowance of the credit for the costs of developing certain internal-use computer software to such software meeting a high threshold of innovation.

*University basic research.*--The Congress believed it is desirable to provide increased tax incentives for corporate cash expenditures for university basic research where such expenditures do not

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<sup>15</sup> House Rept. 99-426, 99th Congress, 1st Session, Part 4 of 20 Parts, 1986-3 CB (Part 2). Similarly, see Senate Report 99-313, 99th Congress, 2d Session., 1986-3 CB (Part 3).

<sup>16</sup> Joint Committee on Taxation, *General Explanation of the Tax Reform Act of 1986*, May 4, 1987, pages 130 – 131.

merely represent a switching of donations from general university giving and where certain other maintenance-of-effort levels are exceeded. By contrast to other types of research or product development, where expected commercial returns attract private investment, basic research typically does not produce sufficiently immediate commercial applications to make investment in such research self-supporting. Because basic research typically involves greater risks of not achieving a commercially viable result, larger-term projects, and larger capital costs than ordinary product development, the Federal Government traditionally has played a lead role in funding basic research, principally through grants to universities and other nonprofit scientific research organizations. In addition, the research credit as modified by the Act provides increased tax incentives for corporate funding of university basic research to the extent that such expenditures reflect a significant commitment by the taxpayer to basic research.

*Credit use limitation.*--The Congress concluded that the general limitation on use of business credits (under the Act, 75 percent of tax liability over \$25,000) should apply to the research credit.

Queries: What is the derivation of the phrase “innovative qualities and efficiency of the U.S. economy” as used above in the House and Senate Committee reports? This phrase is used in the legislative histories to the TRA’86, but was not used in the ERTA’81 legislative histories.

A 1984 Treasury report which lead to the TRA’86 states:

“The R&E credit, which is designed to encourage businesses to undertake additional private research activities, will be extended. To improve the effectiveness of the credit, however, the scope of qualifying expenses will be focused so that the credit is available only for private research activities that are likely to lead to technological innovations. A revised definition of eligible expenses will target the credit more narrowly and provide a greater incentive for business to undertake research efforts which will lead to productivity-enhancing innovations.”<sup>17</sup>

Does the above statements indicate that the purpose of the credit was intended to be changed by the TRA’86, or just the definition of “qualified research?”

Qualified Research: A key requirement for qualified research is that the expenditures for such research may be treated as expenses under §174. Thus, §174 is the first hurdle for research activities to satisfy, in order to determine if they might constitute QRE.<sup>18</sup> In addition, qualified research is research undertaken to discover information which is technological in nature, and the application of which is intended to be useful to develop a new or improved business component of the taxpayer. Finally, substantially all of the activities of the research must constitute elements of a process of experimentation that relates to i) a new or improved function, ii) performance, or iii) reliability or quality. Research is not "qualified" if it relates to "style, taste, cosmetic, or seasonal design factors."<sup>19</sup>

The tests to determine if research is "qualified research" (see above) are to be applied separately for each of the taxpayer's business components. A business component is any product, process, software, technique, formula or invention that will be, i) held for sale, lease, or license, or ii) used by the taxpayer in its trade or business. Any plant process, machinery, or technique for commercial production of a business component is to be treated as a separate business component, rather than as part of the business component being produced. "Thus, research relating to the development of a new or improved production process is not eligible for the credit unless the definition of qualified research is met separately with

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<sup>17</sup> Department of Treasury, *Tax Reform for Fairness, Simplicity, and Economic Growth*, Volume 1, November 1984, page 138.

<sup>18</sup> "No inference is intended from the rules in the conference agreement defining research for purposes of the incremental credit as to the scope of the term "research or experimental" for purposes of the section 174 expensing deduction." TRA'86 Conference Report, 1986-3 C.B. Vol. 4, pg. 76.

<sup>19</sup> I.R.C. § 41(d)(3).

respect to such production process research, without taking into account research relating to the development of the product."<sup>20</sup>

Per the legislative history to the TRA'86, *technological in nature* means:<sup>21</sup>

The determination of whether the research is undertaken for the purpose of discovering information that is technological in nature depends on whether the process of experimentation utilized in the research fundamentally relies on principles of the physical or biological sciences, engineering, or computer science<sup>3</sup> - in which case the information is deemed technological in nature - or on other principles, such as those of economics - in which case the information is not to be treated as technological in nature. For example, information relating to financial services or similar products (such as new types of variable annuities or legal forms) or advertising does not qualify as technological in nature.

<sup>3</sup> Research does not rely on the principles of computer science merely because a computer is employed. Research may be treated as undertaken to discover information that is technological in nature, however, if the research is intended to expand or refine existing principles of computer science.

Also per the legislative history to the TRA'86, *process of experimentation* means:<sup>22</sup>

The term process of experimentation means a process involving the evaluation of more than one alternative designed to achieve a result where the means of achieving that result is uncertain at the outset. This may involve developing one or more hypotheses, testing and analyzing those hypotheses (through, for example, modeling or simulation), and refining or discarding the hypotheses as part of a sequential design process to develop the overall component.

The terms *qualified research*, *technological in nature*, and *process of experimentation* have been the subject of much controversy since added to §41 in 1986. Final regulations defining these terms were not issued until January 2001 and were soon after pulled back by the Treasury and IRS for further comment.<sup>23</sup>

#### **Policy Point**

- The research credit is to apply to research involving attributes of technological innovation.

### **1988—Extension and Requirement to Reduce R&D Deduction**

The Technical and Miscellaneous Revenue Act of 1988 (TAMRA) (P.L. 100-647) extended the research credit through December 31, 1989. It also called for a report from the General Accounting Office (GAO) prior to expiration of the credit, on the effectiveness of the credit and how it could be improved. TAMRA also required a reduction in the taxpayer's §174 deduction equal to 50% of the research credit determined for the year; a similar rule applies to taxpayers who capitalize R & E rather than expense it (§280C(c)).

### **1989—Change in Formula and Further Reduction in R&D Deduction**

The Revenue Reconciliation Act of 1989 (RRA'89) (P.L. 101-239) made various changes to §§41, 174 and 280C(c). The requirement to reduce a taxpayer's §174 deduction by 50% of its research credit was

<sup>20</sup> TRA'86 Conference Report, 1986-3 C.B. Vol. 4 pg. 73.

<sup>21</sup> Conference Report No. 99-841, 1986-3 C.B. Vol 4, 71.

<sup>22</sup> Conference Report No. 99-841, 1986-3 C.B. Vol 4, 72.

<sup>23</sup> On January 31, 2001, Treasury Secretary O'Neill announced that Treasury was delaying the effective date of the final regulations and reopening the comment period. Treasury press release of January 31, 2001, PO-18; <http://www.treas.gov/press/releases/po18.htm>. Per Notice 2001-19, 2001-10 I.R.B. \_\_\_, comments are requested by April 2, 2001.

changed to a 100% reduction. Thus, a taxpayer computing a \$500 credit and a \$60,000 §174 deduction would only be able to deduct \$59,500 under §174. Section 280C(c) was also changed to allow a taxpayer to elect to reduce its research credit by the amount of tax saved by not making a reduction in its §174 deduction, rather than taking a reduced §174 deduction.

Additional changes include the addition of §41(b)(4), which relaxed the requirement that the research expenditures be incurred in carrying on a trade or business, such that a “startup venture” might be able to claim the research tax credit. Prior to this change, the trade or business requirement was similar to that of §162 for the deduction of trade or business expenditures. With the 1989 change, the trade or business requirement is disregarded for in-house research expenses, if at the time the expenditures are incurred, the principal purpose for making the expenditures is to use the research results in the active conduct of a future trade or business of the taxpayer, or of one or more other persons with which the taxpayer is treated as a single taxpayer under §41(f)(1). Note though, that the RRA'89 did not change §41(b)(1) which still provides that "qualified research expenses" are certain amounts paid or incurred by a taxpayer in carrying on any trade or business; new §41(b)(4) is just a limited exception to the general rule. Also note that §41(b)(4) only deals with in-house expenditures of the start-up venture and not with contract research expenses.

The RRA'89 also revised §41(c) to change the computation of the base amount. As originally enacted, the credit was computed based on a percentage of the increase in qualified research expenditures over those of the prior three years. A problem with this formula is that it might encourage companies to decrease research expenditures in the second and third years in order to maximize the credit in the fourth year. The Senate Finance Committee explained its rationale for changing the base period calculation in the RRA'89 as follows:<sup>24</sup>

In extending the research credit, the committee wished to respond to the criticism that the incentive effect of the present-law research credit was diminished as a result of the method of computing the taxpayer's base amount. Critics have noted that although an increase in research expenditures resulted in a taxpayer receiving a larger credit for that year, it also resulted in higher base period amounts (and therefore smaller credits) in the following three years. As a consequence, the present-law credit's marginal incentive effect provided in the first year was largely offset in the following three years. The committee, therefore, modified the method of calculating a taxpayer's base amount in order to enhance the credit's incentive effect. The committee did wish, however, to retain an incremental credit structure in order to maximize the credit's efficiency by not allowing (to the extent possible) credits for research that would have been undertaken in any event.

Although the committee believes it is important to readjust the base amount annually in a way which does not undercut the incentive effect of the credit (which occurs when a firm's base is adjusted solely by reference to its own prior levels of research spending), the committee also determined it was appropriate that the base adjustments reflect firm-specific factors. By adjusting each taxpayer's base to its own experience, the committee wanted to make the credit widely available at the lowest possible revenue cost.

Because businesses often determine their research budgets as a fixed percentage of gross receipts, it is appropriate to index each taxpayer's base amount to average growth in its gross receipts. By so adjusting each taxpayer's base amount, the committee believes the credit will be better able to achieve its intended purpose of rewarding taxpayers for research expenses in excess of amounts which would have been expended in any case. Using gross receipts as an index, firms in fast-growing sectors will not be unduly rewarded if their research intensity, as measure by their ratio of qualified research to gross receipts, does not correspondingly increase. Likewise, firms in sectors with slower growth will still be able to earn credits as long as they maintain research expenditure commensurate with their own sales growth.

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<sup>24</sup> Senate Finance Committee Report (Part 1 of 6 Parts) (Oct. 13, 1989), 135 Cong. Rec. S13125 (10/12/89).

Adjusting a taxpayer's base by reference to its gross receipts also has the advantage of effectively indexing the credit for inflation and preventing taxpayers from being rewarded for increases in research spending that are attributable solely to inflation.

The 1989 Act extended the credit through December 31, 1990 with a special proration rule for tax years beginning before October 1, 1990 and ending after September 30, 1990. In addition, RRA'89 added the "reasonableness" requirement at §174(e) in response to *Driggs v U.S.*, 89-1 USTC ¶9188, 706 FSupp 20 (ND TX). Because expenditures must meet the definition of R & E under §174 to be eligible for the credit (§41(d)(1)), this reasonableness requirement is relevant under §41.

### **1990—Another Extension**

The Omnibus Budget Reconciliation Act of 1990 (OBRA'90) (P.L. 101-508) extended the credit through December 31, 1991 and removed the proration rule added by RRA'89.

### **1991—Another Extension**

The Tax Extension Act of 1991 (P.L. 102-227) extended the credit through June 30, 1992.

### **1993—Yet Another Extension + A New Beneficial Rule for Start-up Companies**

The Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66) extended the credit through June 30, 1995. It also added a special rule for start-up companies in computing the fixed-base percentage needed to compute the amount of the research credit (§41(c)(3)(B)).

### **1996—Extension + New Alternative Incremental Research Credit**

The Small Business Job Protection Act of 1996 (SBJPA) (P.L. 104-188) extended the research credit from July 1, 1996 to May 31, 1997. This was the first time that the credit was not retroactively extended and thus, July 1, 1995 through June 30, 1996 is a gap period in which no federal research tax credit was available. The Act also expanded the definition of "start-up company" to also include any firm if the first tax year in which it had both gross receipts and QRE began after 1983. The Act also allowed for 75%, rather than 65% of payments to certain research consortia to be treated as QRE (§41(b)(3)(C)).

Finally, the 1996 Act created an elective alternative incremental research credit (AIRC) at §41(c)(4) designed to provide an incentive to certain firms that despite increasing QRE, were denied a credit because of rapidly increasing gross receipts. The AIRC uses a 3-tiered fixed-base percentage that is lower than the standard fixed-base percentage. The election could only be made for the taxpayer's first tax year beginning after June 30, 1996 and before July 1, 1997 and could only be revoked with IRS consent. A taxpayer electing the AIRC could only compute the credit for the first 11 months of the tax year. A technical correction was later needed to indicate that a taxpayer electing the AIRC was not allowed to compute more than 11 months of a research credit under both the regular credit and the AIRC (unless the credit was extended). An example of the AIRC computation is included later in this outline.

*Restatement of Purpose:* While various changes have been made since 1981 to the definition of research that qualifies for the credit, as well as to the formula for calculating the credit, the rationale for having a credit has not changed.

Businesses may not find it profitable to invest in some research activities because of the difficulty in capturing the full benefits from the research. Costly technological advances made by one firm are often cheaply copied by its competitors. A research tax credit can help promote investment in research, so that research activities undertaken approach the optimal level for the overall economy. Therefore, the Committee believes that, in order to encourage research activities, it is appropriate to reinstate the research tax credit and to modify certain rules for computing the credit.<sup>25</sup>

#### **Policy Point**

- While still recognizing the need for an incremental credit, Congress made its first significant change to the base period since 1989 to better ensure that the purpose of the credit was being served.

### **1997—Extension**

The Taxpayer Relief Act of 1997 (P.L. 105-34) extended the credit for 13 months through June 30, 1998. Also, taxpayers electing the AIRC were to obtain no more than 24 months of credit from June 30, 1996.

### **1998—Extension + Clarification of “Qualified Credit” As Modified in 1986**

The Tax and Trade Relief Extension Act of 1998 (P.L. 105-277) extended the credit through June 30, 1999. In addition, the legislative history to this Act clarifies key terms used to compute the credit – “technological in nature” and “process of experimentation,” in response to post-1996 cases involving the meaning of “qualified research” under §41(d).

CONFERENCE REPORT ON H.R. 4328, MAKING OMNIBUS CONSOLIDATED AND  
EMERGENCY SUPPLEMENTAL APPROPRIATIONS FOR FISCAL YEAR 1999  
TITLE I. EXTENSION AND MODIFICATION OF CERTAIN EXPIRING PROVISIONS

Subtitle A--Tax Provisions

A. Extension of Research Tax Credit

(sec. 101 of the House bill, sec. 101 of S. 2622, and sec. 41 of the Code)

Conference Agreement excerpt

[Also see 1998 Blue Book pages 236-237]

In extending the credit, the conferees wish to reaffirm the scope of the term “qualified research.” Section 41 targets the credit to research which is undertaken for the purpose of discovering information which is technological in nature and the application of which is intended to be useful in the development of a new or improved business component of the taxpayer. However, eligibility for the credit does not require that the research be successful--i.e., the research need not achieve its desired result. Moreover, evolutionary research activities intended to improve functionality, performance, reliability, or quality are eligible for the credit, as are research activities intended to achieve a result that has already been achieved by other persons but is not yet within the common knowledge (e.g., freely available to the general public) of the field (provided that the research otherwise meets the requirements of section 41, including not being excluded by subsection (d)(4)).

Activities constitute a process of experimentation, as required for credit eligibility, if they involve evaluation of more than one alternative to achieve a result where the means of achieving the result are uncertain at the outset, even if the taxpayer knows at the outset that it may be technically possible to achieve the result. Thus, even though a researcher may know of a particular method of achieving an

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<sup>25</sup> Senate Finance Committee Report to the Small Business Job Protection Act of 1996 (H.R. 3448; S. Rept. 104-281, June 1996), excerpt from the reason for change.

outcome, the use of the process of experimentation to effect a new or better method of achieving that outcome may be eligible for the credit (provided that the research otherwise meets the requirements of section 41, including not being excluded by subsection (d)(4)).

Lastly, the conferees observe the lack of clarity in the interpretation of the distinction between internal-use software, the costs of which may be eligible for the credit if additional tests are met, and other software. The conferees emphasize that application of the definition of internal-use software should fully reflect congressional intent.<sup>26</sup>

## **1999—A Longer Extension + Further Clarification of “Qualified Credit” As Modified in 1986**

The Tax Relief Extension Act of 1999 (P.L. 106-170) extended the research credit through June 30, 2004. It also expanded the credit to include research undertaken in Puerto Rico and U.S. possessions (effective for amounts paid or incurred after June 30, 1999). This Act also increased each of the three percentages used to compute the alternative incremental research credit (AIRC) by one percentage point (to 2.65, 3.2, and 3.75) (effective for tax years beginning after June 30, 1999). Another change to §41 provides that credits attributable to the period beginning July 1, 1999 and ending September 30, 2000 may not be used for any purpose prior to October 1, 2000. Subsequent to that time, the credit may be taken into account on amended returns, an application for expedited refund (see below), an estimated tax adjustment, or other means allowed by the Code. Despite the delay in claiming the credit, a taxpayer's §174 deduction must still be reduced by the credit applicable to that period (unless the taxpayer elects to take a reduced credit under §280C(c)). A similar delay applies to any credit attributable to the period beginning October 1, 2000 and ending September 30, 2001 such that any credit attributable to that period may not be taken into account for any purpose (other than §280C(c)) prior to October 1, 2001.<sup>27</sup>

*Clarification of TRA'86 legislative language:* Just as Congress did when it last extended the credit in October 1998, it included language in the TREA'99 conference committee report to help explain key terms in defining "qualified research." The full text of this language follows:<sup>28</sup>

In extending the research credit, the conferees are concerned that the definition of qualified research be administered in a manner that is consistent with the intent Congress has expressed in enacting and extending the research credit. The conferees urge the Secretary to consider carefully the comments he has and may receive regarding the proposed regulations relating to the computation of the credit under section 41(c) and the definition of qualified research under section 41(d), particularly regarding the "common knowledge" standard. The conferees further note the rapid pace of technological advance, especially in service-related industries, and urge the Secretary to consider carefully the comments he has and may receive in promulgating regulations in connection with what constitutes "internal use" with regard to software expenditures. The conferees also observe that software research, that otherwise satisfies the requirements of section 41, which is undertaken to support the provision of a service, should not be deemed "internal use" solely because the business component involves the provision of a service.

The conferees wish to reaffirm that qualified research is research undertaken for the purpose of discovering new information which is technological in nature. For purposes of applying this definition, new information is information that is new to the taxpayer, is not freely available to the general public, and otherwise satisfies the requirements of section 41. Employing existing technologies in a particular field or relying on existing principles of engineering or science is qualified research, if such activities are

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<sup>26</sup> From: Congressional Record: October 19, 1998 (House), Pages H11503-H11545 (thomas.loc.gov).

<sup>27</sup> See Notice 2001-2, 2001-2 I.R.B. 265, for guidance on claiming a credit generated during a suspension period.

<sup>28</sup> H.R. Conf. Rep. No. 106-478 (1999), Cong. Rec. November 17, 1999, page H12207.

otherwise undertaken for purposes of discovering information and satisfy the other requirements of section 41.

The conferees also are concerned about unnecessary and costly taxpayer record keeping burdens and reaffirm that eligibility for the credit is not intended to be contingent on meeting unreasonable record keeping requirements.

## **2000—Technical Correction**

The Consolidated Appropriations Act for FY2001 (P.L. 106-554) includes a technical correction to the TREA'99 to clarify the interaction of §41 as applied to research conducted in Puerto Rico and §30A – the Puerto Rico economic activity credit. The Act adds new §30A(f) and modifies §280C(c)(1) to clarify that any wages or other expenses taken into account under §30A may not be taken into account in calculating the research credit under §41.<sup>29</sup>

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<sup>29</sup> P.L. 106-554, Dec 21, 2000; includes tax provisions from H.R. 5662 - Community Renewal Tax Relief Act of 2000. See Cong. Rec. Dec. 15, 2000, H12416 (<http://thomas.loc.gov/home/omni2000/omni2000.html>).

## Policy as Evident from the Operations & Features of the Credit

This section explains the operation of the research tax credit – the basic formula and its place in the determination of a taxpayer's net tax liability. Some examples of the standard credit and AIRC are provided. Observations about the underlying policy implications of the formula are provided from this discussion. This section begins with an explanation of §174. In order for research to qualify for the research tax credit, it must qualify as a §174 R&E expenditure, as an initial threshold. However, the definition of QRE under §41 is not as broad as the definition of R&E under §174 in that certain types of expenditures, such as overhead, don't qualify as QRE, and some research activities are excluded from §41.

### IRC §174 – Foundation to the Research Credit

Section 174 provides a general rule that a taxpayer may treat R&E expenditures paid or incurred during the tax year in connection with his trade or business as expenses which are not chargeable to a capital account. Thus, expenditures meeting the definition of R&E expenditures may be currently deducted even though they may create a long-lived asset. If a taxpayer does not want to currently expense R&E expenditures, it must make a timely election to capitalize such expenditures under §174(b). Under the election method, the taxpayer would begin to amortize the capitalized expenditures ratably over no fewer than 60 months beginning in the month that he first realizes benefits from the R&E expenditures.

#### Rationale

An expensing rule encourages R&D activities. In addition, an expensing rule eliminates the uncertainty and the conflict that can arise between taxpayers and the Service regarding the proper tax accounting treatment (current expensing versus capitalizing) of R&D expenditures.<sup>30</sup>

#### "In Connection With"

The wording at §174(a) allowing a current deduction for R&E is not identical to the wording at §162 allowing a current deduction for most business expenses. §162 only allows a deduction for ordinary and necessary expenses incurred in *carrying on* a trade or business. Thus, expenses of getting ready for a business are not deductible under §162 (such expenses might be capitalizable and amortizable under Sections 195, 248 and/or 709). The language at §174 allows a deduction for R&E incurred *in connection with* a trade or business.<sup>31</sup>

#### Trade or Business

"Inventive activities" have been held to constitute a trade or business for §174 purposes where the taxpayer's inventive activities were of "sufficiently sustained character."<sup>32</sup> Exploiting inventions through

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<sup>30</sup> Rev. Rul. 85-186, 1985-2 C.B. 85.

<sup>31</sup> The landmark case that explains the significance of the differing terminology at §162 and §174 is the Supreme Court case, *Snow v. Commissioner*, 416 U.S. 500 (1974).

<sup>32</sup> *Louw v. Commissioner*, 30 T.C.M. (CCH) 1421, 1422 (1971). Taxpayer had designed inventions over his lifetime and had pursued marketing some of them as well as patenting them. The court noted that he had pursued his activities in a business-like manner (at 1423). Similarly, in *Kilroy v. Commissioner*, 41 T.C.M. (CCH) 292, 295 (1980), the taxpayer was found to be engaged in the business of inventing "at least to the extent required by section 174." In *Magee v. Commissioner*, 32 T.C.M. (CCH) 1277, 1279 (1973), the court stated: "First, we note that the lack of economic return to the petitioner does not alone rule

the collection of royalties or sales of patents may constitute a business; a taxpayer need not put them to commercial use himself.<sup>33</sup> Also, because developmental activity may not yield any income in the early years, lack of income from a project is not determinative of whether or not the trade or business requirement is satisfied.<sup>34</sup> However, the facts and circumstances of the planned activities must be reviewed to determine if the taxpayer is entitled to a §174 deduction. The "mere presence of a profit motive ... is not determinative of whether the §174 deduction will be allowed."<sup>35</sup> In order to meet the trade or business requirement of §174, a profit motive is not enough. The entity incurring the R&E expenditures must actually manage and control the "use or marketing of the research results."<sup>36</sup>

### **Definition of R&E<sup>37</sup>**

R&E expenditures are those which represent R&D costs in the experimental or laboratory sense. The regulations provide that expenditures represent R&D costs in the "experimental or laboratory sense if they are for activities intended to discover information that would eliminate uncertainty concerning the development or<sup>38</sup> improvement of a product. Uncertainty exists if the information available to the taxpayer does not establish the capability or method for developing or improving the product or the appropriate design of the product" (footnotes added).<sup>39</sup> In applying the definition, one is to look at the nature of the activity producing the expenditures, not to the nature of the product or improvement being developed "or the level of technological advancement the product or improvement represents."<sup>40</sup>

Example: In TAM 9538008, redesign of existing home appliances or components was held to qualify as R&E. Projects were undertaken to, 1) produce better and more competitive product, 2) to increase reliability, 3) to increase general product safety, or 4) to respond to new federal restrictions.

A "product" includes "any pilot model, process, formula, invention, technique, patent, or similar property, and includes products to be used by the taxpayer in its trade or business as well as products to be held for sale, lease, or license."<sup>41</sup> Research for new products and processes is not required to be related to the taxpayer's current product lines in order to be considered R&E under §174.<sup>42</sup>

It is important in applying §174 to distinguish R&E from actual production.<sup>43</sup> Production costs would be subject to the inventory accounting rules of Sections 471 and 263A, rather than §174. To qualify as a

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out the intention and expectation of making a profit. Such experimental activity often shows little, if any, return during developmental stages. It was to encourage this kind of activity that Congress authorized the current deduction of research and experimental expenditures. S. Rpt. No. 1622, 83d Cong., 2d Sess., p. 33. Significantly, the petitioner obtained a patent on his scaffold" (footnote omitted). Also see *Maximoff v. Commissioner*, 53 T.C.M. (CCH) 423 (1987) where the taxpayer's inventive activities that were engaged in with continuity and regularity were held to constitute a trade or business for §162 purposes. However, the court does not specify why its conclusion involved §162 rather than §174.

<sup>33</sup> *Louw v. Commissioner, supra.*

<sup>34</sup> *Maximoff v. Commissioner, supra.*

<sup>35</sup> *Harris v. Commissioner*, 16 F.3d 75, 80 (5th Cir. 1994).

<sup>36</sup> *Id.*

<sup>37</sup> For a more detailed overview to the meaning of R&E as evidenced from congressional intent, cases and IRS rulings over the past few decades, see "Congressional Intnet, Long-Standing Authorities Support Broad Reading of Section 174," by Mark L. McConaghy and Richard B. Ruge, *Tax Notes*, Feb. 1, 1993, page 639.

<sup>38</sup> Note the use of "or" rather than "and."

<sup>39</sup> Reg. § 1.174-2(a)(1).

<sup>40</sup> *Id.*

<sup>41</sup> Reg. § 1.174-2(a)(2).

<sup>42</sup> Rev. Rul. 71-162, 1971-1 C.B. 97. Also see *Best Universal Lock Co., Inc. v. Commissioner*, 45 T.C. 1 (1965), *acq.* 1966-2 C.B. 4.

<sup>43</sup> See Rev. Rul. 73-275, 1973-1 C.B. 134, citing *Martin Mayrath*, 41 T.C. 582 (1964), *aff'd*, 357 F.2d 209 (5th Cir. 1966).

§174 expenditure, the expenditure must be of an "investigative nature in developing the concept of a model or product" rather than incurred in the actual construction of the product.<sup>44</sup>

R&E expenditures include costs of obtaining a patent, including attorney fees in making and perfecting the application.<sup>45</sup> Quality control testing does not constitute R&E. However, the regulations clarify that "quality control testing does not include testing to determine if the design of the product is appropriate" (validation testing).<sup>46</sup>

Section 174 only applies to R&E expenditures if they are reasonable in amount under the circumstances. Generally, expenditures are reasonable in amount if the amount "would ordinarily be paid for like activities by like enterprises under like circumstances."<sup>47</sup>

### **Software Development as R&E**

Per Revenue Procedure 2000-50 (formerly Revenue Procedure 69-21),<sup>48</sup> software development costs may be treated similarly to §174 expenditures thereby allowing the taxpayer to currently expense the costs or to elect to amortize them over 60 months under §174(b) or under the 167(f) depreciation rule (36 months). Under Revenue Procedure 2000-50, a taxpayer who buys software would be able to amortize the cost ratably over 36 months per §167(f)(1), unless the software was acquired as part of the hardware without the cost being separately stated (in which case it is depreciated along with the hardware).

It is important to note that Revenue Procedure 2000-50 does not state that software development expenditures are per se R&E expenditures. Instead, it states that software development costs "in many respects so closely resemble the kind of research and experimental expenditures that fall within the purview of §174 as to warrant similar accounting treatment."

*Relevance to the §41 research credit:* In *Norwest v. Commissioner*, 110 T.C. 454 (1998), the court stated that for purposes of software development expenditures qualifying for the credit, they must meet the definition of R&E under §174. "We believe that the phrase 'the research expenditures may be treated as expenses under section 174' is meant to require the taxpayer to satisfy all the elements for a deduction under section 174."

### **Depreciable Property**

Expenditures to acquire or improve land or depreciable property to be used in connection with R&E activities do not qualify for §174 treatment. However, depreciation allowances can be expenditures under §174 to the extent that the related property is used in connection with R&E.<sup>49</sup> If R&E expenditures are incurred in the construction or manufacture of depreciable property by another person, they are only deductible under §174 if "made upon the taxpayer's order and at his risk."<sup>50</sup>

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<sup>44</sup> *Mayrath v. Commissioner*, 41 T.C. 582, 590 (1964), *aff'd*, 357 F.2d 209 (5th Cir. 1966). In TAM 8211004 (Nov. 27, 1981), the Service ruled that the R&E phase of developing a drug extended until the completion of all testing because prior to that point, there was no marketable product.

<sup>45</sup> This definition differs from Financial Accounting Statement No. 2, Accounting for Research and Development Costs, which specifically states that costs to obtain a patent do not constitute R&D expenditures.

<sup>46</sup> Reg. § 1.174-2(a)(4).

<sup>47</sup> Reg. § 1.174-2(a)(6); based on §174(e) added by Omnibus Budget Reconciliation Act of 1989, Pub. L. No. 101-239, § 7110, 103 Stat. 2106.

<sup>48</sup> Rev. Proc. 2000-50, 2000-52 I.R.B. 601 and Rev. Proc. 69-21, 1969-2 C.B. 303.

<sup>49</sup> Reg. § 1.174-2(b)(1).

<sup>50</sup> Reg. § 1.174-2(b)(3).

Example 1: X Corporation orders a specially-built automatic milling machine with the guarantee that it is capable of producing a set number of units per hour. X may not treat this expenditure as a deduction under §174 because the machine was not made at X's risk.<sup>51</sup>

Example 2:<sup>52</sup> Software Developer (SD) created the design, elements and designations of computer games and then contracted out certain graphics software development for them. SD also gave the contract developers proprietary software information necessary to the development of the games. The development agreement between the parties included detailed specifications and listed deliverable items and milestones. The contract developer had to meet the specifications before SD was required to pay. The contract developer was to test each deliverable prior to delivery. SD was required to notify the contract developer of any errors within a specified time and the developer was given a specified time to fix the problems. The software became the exclusive property of SD, but the contract developer retained ownership of any and all separately developed and acquired programming technology, subroutines, programming utilities and programming tools embodied in or used in the preparation of the software. The contract developers were paid royalties based on sales with a specified advance royalty also paid. SD had the right to terminate the agreement at any time for any reason and the contract developer could keep any payments received to date. Sometimes, design and deliverables were modified during the course of the agreement.

The Service ruled that SD was not at risk for the development of the software. The contract developers were not paid until SD verified that the programs were bug-free and were required to make any corrections for later discovered errors, at no additional cost to SD. The Service stated that the contract developers were responsible for the operability of the software per SD's specifications and the developer kept no ownership interest in the software. Thus, the developer bore the risk of developing the software.

Thus, the Service concluded that the advance royalty payments made to the independent software developers by SD constituted expenditures for purchased software, capitalizable per Revenue Procedure 69-21, rather than R&E expenditures. This example is a good illustration of the difficulty that can arise in determining which party bears the risk of development and the importance of contract terms.

If R&E expenditures result in an end product that constitutes depreciable property to be used in the taxpayer's trade or business, the costs of the component materials, labor and other costs involved in the construction or acquisition of the property do not constitute R&E expenditures.<sup>53</sup> For example, taxpayer D incurs \$30,000 of costs to develop a new machine to be used in D's business. The cost of material, labor and other costs is \$10,000 and additional costs, representing research costs total \$20,000. Under §174(a), D may deduct the \$20,000, but the \$10,000 must be capitalized to an asset account.<sup>54</sup>

#### **§41 versus §174**

Section 174 covers a broader range of research expenses than does §41. For example, utilities and overhead related to research in the experimental or laboratory sense, are §174 expenditures, but are not QRE.

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<sup>51</sup> *Id.*

<sup>52</sup> Example is based on TAM 9449003(Aug. 25, 1994).

<sup>53</sup> Reg. §1.174-2(b)(2) and (4).

<sup>54</sup> Example is from Reg. §1.174-2(b)(4).

## Certain Activities Not Constituting "Qualified Research" for §41 Purposes

While the activities listed below are specifically excluded from the definition of QRE under §41, Congress has cautioned taxpayers not to assume that such exclusions constitute §174 items by default.<sup>55</sup>

- (i) research after commercial production;
- (ii) adaptation of existing business components;
- (iii) duplication of existing business component from examination of the business component or from plans or publicly available information;
- (iv) survey, studies, and data collections;
- (v) software developed primarily for internal use by the taxpayer other than for use in an activity constituting qualified research or a production process, or as specified in regulations;<sup>56</sup>
- (vi) research conducted outside the United States, Puerto Rico or a U.S. possession;
- (vii) research in the social sciences, arts, or humanities; or
- (viii) research to the extent it is funded by any grant, contract or by some other person, including a governmental entity.

## The Basics of the Standard Research Tax Credit<sup>57</sup>

### The §41 Formula and Terminology

The standard research credit computed under §41 is based on the following formula:

$$20\% \times [\text{QRE less base amount}] + 20\% \times \text{basic research payments}$$

*Qualified research expenses* (QRE) are the total of (A) in-house research expenses, plus (B) contract research expenses, paid or incurred by the taxpayer during the tax year in carrying on any trade or business. In-house research expenses include wages paid or incurred to an employee for qualified services performed, plus amounts paid or incurred for supplies in the conduct of qualified research. Contract research expenses represent 65% of amounts paid or incurred for any non-employee for qualified research.

The *base amount* equals the fixed-base percentage multiplied by the taxpayer's average annual gross receipts for the four preceding tax years. The base amount cannot be less than 50% of the QRE for the year for which the credit is being calculated.

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<sup>55</sup> "No inference is intended from the rules ... defining research for purposes of the incremental credit as to the scope of the term "research or experimental" for purposes of the section 174 expensing deduction." TRA'86 Bluebook at 137.

<sup>56</sup> In addition to the types of internal use software specified at § 41(d)(4)(e)(i) and (ii), other internal use software may qualify if the taxpayer can show, in addition to the general requirements of § 41, (1) that the software is innovative (for example, it results in cost reduction or speed improvement, that is "substantial and economically significant"), (2) that the software development involves significant economic risk, and (3) that the software is not commercially available for use by the taxpayer. TRA 1986 Bluebook at 135 and Reg. §1.41-4(c)(6).

<sup>57</sup> The statute, regulations and legislative histories should be reviewed for a more detailed overview to the operation of the research tax credit.

Generally, the fixed base percentage is determined by the following formula:

$$\frac{\text{total qualified research expenses for 1984 - 1988}}{\text{total gross receipts for 1984 - 1988}}$$

The fixed-base percentage may not exceed 16%. The lower the fixed base percentage, the greater the research credit. A special rule exists for start-up companies which provides them with a fixed base percentage of 3% for their first five tax years.

Gross receipts are the total amount of revenues received from all sources excluding returns or allowances, receipts from the sale or exchange of capital assets, loan repayments, receipts from a sale or exchange not in the ordinary course of business, and sales taxes which are legally imposed on the purchaser. Gross receipts excludes amounts received in a tax year that precedes the first tax year in which the taxpayer derives more than \$25,000 in gross receipts other than investment income.<sup>58</sup>

Per §41(d), qualified research means research –

- (A) with respect to which expenditures may be treated as expenses under section 174,
- (B) which is undertaken for the purpose of discovering information –
  - (i) which is technological in nature, and
  - (ii) the application of which is intended to be useful in the development of a new or improved business component of the taxpayer, and
- (C) substantially all of the activities of which constitute elements of a process of experimentation for a purpose that relates to a new or improved function, performance, or reliability or quality.

A *basic research payment* is a cash payment by a corporation to a qualified organization for basic research to be performed by the organization. The payment must be made pursuant to a written agreement between the corporation and the organization.<sup>59</sup>

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<sup>58</sup> IRC §41(c)(5) and Reg. §1.41-3(c).

<sup>59</sup> IRC §41(e). There are several special rules and definitions for the research credit generated from basic research payments.

## The §280C(c) Reduction

Section 280C(c) denies a taxpayer a deduction for the portion of its QRE or basic research expenses equal to the amount of its research credit, unless it instead elects to take a reduced credit determined for the tax year.<sup>60</sup> If the taxpayer has elected under §174(b) to capitalize R&E expenditures, the capitalized amount is reduced by the amount of the research credit. The calculation of the reduced credit (when elected in lieu of reducing §174 expenditures by the amount of the credit) involves the following three steps:

1st - compute the §41 credit

2nd - multiply the credit by 35 percent (maximum corporate tax rate)

3rd - reduce the §41 credit by the amount from step 2<sup>61</sup>

Example: Assume X Corporation is in the 34% corporate tax bracket and calculated a research credit of \$1,600 for 1999 based on QRE of \$16,000. X may either reduce its §174 deduction for 1999 by \$1,600, or elect to take a reduced research credit of \$1,040 calculated as follows:

$$\text{\$1,600 credit} \times 35\% = \text{\$560}$$

$$\text{Actual credit} = \text{\$1,600} - \text{\$560} = \text{\$1,040}$$

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<sup>60</sup> A taxpayer might elect to take a reduced research credit rather than reduce its §174 amount by the amount of the credit if it is in an AMT position in that it owes AMT in addition to regular tax (the research credit is not usable against AMT). The election for a reduced research credit may also be desired if the company has other types of credits it is using and does not need a large research credit.

A company might reduce its §174 amount by the amount of the credit rather than elect to take a reduced research credit if it is in a net operating loss (NOL) position and does not want to make it larger, thus it prefers a smaller §174 amount. (Note: This company should consider switching from the §174(a) method to the §174(b) method or utilizing §59(e) to spread out the deductions for current R&E expenditures.) A full credit may also be the desired choice if a company is in a net operating loss (NOL) position for state tax purposes and the state does not allow the entire NOL to be carried back or carried forward. In addition, a taxpayer subject to the R&E allocation rules of §864(f) and Reg. §1.861-8(e) may desire a reduced R&E deduction amount so that a smaller R&E expenditure amount exists to be allocated to foreign source income (thus, possibly increasing the amount of usable foreign tax credit). Finally, a taxpayer in a tax bracket less than 35% may wish not to take a reduced credit because the credit must be reduced using a 35% tax rate.

<sup>61</sup> These three steps are the equivalent of the 0.13 multiplier on line 16 of Form 6765, Credit for Increasing Research Activities.

## Examples of the Standard Research Tax Credit

**1. Standard Credit Calculation:** Disk Drive, Inc. (DD) is a publicly-traded corporation that designs and manufactures disk drives for personal computers.

Research credit data:

<u>Year</u>	<u>Gross Receipts (GR)</u>	<u>Qualified Research Exp. (QRE)</u>
1984	\$28,000,000	\$3,000,000
1985	\$32,000,000	\$4,200,000
1986	\$31,000,000	\$5,000,000
1987	\$34,000,000	\$6,200,000
1988	\$43,000,000	\$6,800,000
1989	\$48,000,000	\$8,400,000
1990	\$60,000,000	\$10,200,000
1991	\$68,000,000	\$11,000,000
1992	\$76,000,000	\$12,000,000
1993	\$80,000,000	\$10,000,000

### Research Credit Calculation for DD:

Step 1 - determine the fixed base percentage:

Fixed base percentage =  $\frac{\text{total qualified research expenses 1984 - 1988}}{\text{total gross receipts 1984 - 1988}}$

$$= \frac{\$3,000,000 + 4,200,000 + 5,000,000 + \$6,200,000 + 6,800,000}{\$28,000,000 + 32,000,000 + 31,000,000 + 34,000,000 + 43,000,000}$$

$$= \frac{\$25,200,000}{\$168,000,000} = 15.00\%$$

Because 15.00% is below the maximum fixed base percentage of 16%, 15.00% is used.

Step 2 - determine base amount:

Base amount = fixed base % x average annual gross receipts of DD for the four preceding tax years

Average annual gross receipts from 1989 to 1992 =

$$[\$48,000,000 + 60,000,000 + 68,000,000 + 76,000,000] \div 4 = \$63,000,000$$

$$\text{Base amount} = 15.00\% \times \$63,000,000 = \$9,450,000$$

Minimum allowable base amount is 50% of the current year QRE:

$$50\% \times \$10,000,000 = \$5,000,000$$

Because \$9,450,000 is greater than the minimum base amount, \$9,450,000 must be used.

Step 3 - determine credit:

20% x [qualified research expense - base amount] + 20% of basic research payments

$$20\% \times [\$10,000,000 - \$9,450,000] + 20\% \times \$0 = \underline{\underline{\$110,000}}$$

Thus, the \$10,000,000 of 1993 QRE generated a \$110,000 credit (1.10% of QRE).

Per IRC §280C(c), DD must reduce its R & E expense deduction on its 1993 return by \$110,000 (the amount of the credit), or, it may chose instead to take a reduced credit and not change its R & E deduction.

### Observations

- DD would have had a higher credit if its 1993 research expenses were greater, its base years' research expenses were less, and/or its base years' gross receipts were more.
- The lower the fixed base percentage, the greater credit that is possible. Thus, capping the fixed based percentage at 16% helps taxpayers. This feature is beneficial for taxpayers that are highly research-intensive (high QRE relative to gross receipts in the base period).

**2. Start-up Company:** ABC Corporation was formed in 1998 and had the following revenue and expenses:

	1998	1999
Sales revenue	\$20,000	\$45,000
Interest income	\$1,000	\$1,000
Section 174 expenses	\$35,000	\$55,000
QRE	\$22,000	\$39,000

1999 research credit calculation:

Step 1: Fixed base percentage = 3%

$$\text{Step 2: Base amount} = 3\% \times \frac{(\$20,000 + \$45,000)}{2} = \$975$$

Minimum base amount = 50% of 1999 QRE = \$19,500

Step 3: Credit =

$$20\% \times [\$39,000 - \$19,500] = \$3,900$$

or, ABC may elect to take a reduced research credit:

$$\$3,900 \times 35\% = \$1,365$$

$$\text{Credit} = \$3,900 - \$1,365 = \$2,535$$

If ABC does not elect to take a reduced research credit, it must reduce its §174 amount by \$3,900.

### Observations

- ABC benefits from the provision of a 3% fixed-base percentage to start-up companies. Without this provision, its percentage would be higher and its credit lower.
- The 50% base amount limitation reduces ABC's credit by causing it to use a higher base amount (\$19,500 rather than \$975).
- ABC obtained a credit equal to 6.5% of its QRE ( $\$2,535 \div \$39,000$ ). This is the maximum credit amount available to any taxpayer claiming the standard research tax credit.

## **The Basics of the Alternative Incremental Research Credit (AIRC)**

The AIRC uses a 3-tiered fixed-base percentage that is lower than the standard fixed-base percentage. Generally, the AIRC is advantageous for companies that fail to qualify for the standard research tax credit because of a rapid increase in gross receipts that distorts their formula.

### **AIRC Example**

Research credit data for T Corporation:

<u>Year</u>	<u>Gross Receipts (GR)</u>	<u>Qualified Research Exp. (QRE)</u>
1984	\$ 28,000,000	\$ 4,400,000
1985	\$ 30,000,000	\$ 6,300,000
1986	\$ 31,000,000	\$ 6,400,000
1987	\$ 31,000,000	\$ 7,200,000
1988	\$ 32,000,000	\$ 7,600,000
1989	\$ 42,000,000	\$ 8,800,000
1990	\$ 56,000,000	\$ 8,900,000
1991	\$ 68,000,000	\$ 9,000,000
1992	\$ 81,000,000	\$10,000,000
1993	\$ 99,000,000	\$11,000,000
1994	\$117,000,000	\$12,000,000
1995	\$122,000,000	\$13,000,000
1996	\$134,000,000	\$14,000,000
1997	\$156,000,000	\$16,000,000

The standard research tax credit amount is calculated in this example to better illustrate when the AIRC is beneficial.

1) Determine fixed base percentage:

$$= \frac{\text{total QRE 1984 - 1988}}{\text{total gross receipts 1984 - 1988}} = \frac{\$31,900,000}{\$152,000,000} = 20.99\%$$

Because 20.99% is above the maximum fixed base percentage of 16%, 16.00% is used.

2) Determine the base amount:

= fixed base percentage x average annual GR for the 4 preceding tax years

$$= 16.00\% \times \$118,000,000 = \$18,880,000$$

Minimum allowable base amount is 50% of the current year QRE:

$$\$16,000,000 \times 50\% = \$8,000,000$$

Because \$18,880,000 exceeds the minimum base amount, \$18,880,000 must be used.

3) Determine the credit amount:

$$20\% \times [\$16,000,000 - \$18,880,000] + 20\% \times \$0 = \$0$$

Thus, the \$16,000,000 of QRE generates no research tax credit for 1997.

Alternative incremental credit calculation:

Preliminary amounts needed:

$$1\% \times \$118,000,000 = \$1,180,000$$

$$1.5\% \times \$118,000,000 = \$1,770,000$$

$$2\% \times \$118,000,000 = \$2,360,000$$

Calculation - credit equals the sum of the following amounts:

(a) QRE in excess of \$1,180,000, but not in excess of

$$\underline{\$1,770,000}$$

$$\$ 590,000$$

$$\underline{\times 1.65\%}$$

$$\$ 9,735$$

(b) QRE in excess of \$1,770,000, but not in excess of

$$\underline{\$2,360,000}$$

$$\$ 590,000$$

$$\underline{\times 2.2\%}$$

$$\$ 12,980$$

(c) QRE in excess of \$ 2,360,000

$$\underline{\$16,000,000}$$

$$\$13,640,000$$

$$\underline{\times 2.75\%}$$

$$\$ 375,000$$

$$\text{AIRC} = \quad \quad \quad \mathbf{\$397,815}$$

## Observations

- T benefits from the AIRC because it has a high fixed base percentage and rapid growth in gross receipts relative to QRE.
- The Tax Relief Extension Act of 1999 (P.L. 106-170) increased each of the three percentages used to compute the AIRC by one percentage point (to 2.65, 3.2, and 3.75) effective for tax years beginning after June 30, 1999.

## **Policy Points**

- **Rate**—While the standard research tax credit formula uses a 20% rate, the effective rate is much smaller due to the incremental nature of the credit and the reduction required by §280C(c). As illustrated in Example 2 above, the maximum credit possible equals 6.5% of the current year's QRE. Also, since not all §174 expenditures qualify as QRE, the ratio of the credit to total §174 R&D expenditures is in most cases less than 6.5%.

Query: What should the credit percentage be to provide the optimal incentive as intended to encourage increased research activity?

- **In-house and contract research expenses**—“Because of difficulties for taxpayers and the [IRS] in distinguishing research expenditures from nonresearch expenditures, and in order to limit the credit to principal types of research expenditures which distinctly reflect the extent of increased research activities, the credit is limited to certain direct wage, supply, and equipment research expenditures (or a specified percentage of contract research expenditures). The credit is not allowed for other types of research expenditures, or for indirect, administrative, or overhead expenditures.”<sup>62</sup> An additional rationale for limiting the types of §174 expenditures that qualify for the credit is to better enable the credit to focus on expenditures that might not have been incurred but for the research tax credit (the incentive nature of the credit).

It has been estimated that QRE covers about 60% of all R&D actually conducted.<sup>63</sup>

Query: The selection of limited categories of R&E expenditures that qualify for the research credit can have varying impacts on different industries. For example, a labor-intensive taxpayer may be able to generate a higher research tax credit than a capital-intensive one because depreciation is not a QRE. Is the limitation on the types of R&D expenditures that qualify for the credit appropriate given the purpose of the credit?

- **Base amount**—The base amount serves to reward the research credit only for research that would not have otherwise been undertaken. The credit began in 1981 with a moving average approach to calculating the base amount. However, this was changed in 1989 because the moving average encouraged taxpayer's to increase QRE, yet that resulted in a potentially lower percentage in the next period. Some of the issues with the base amount tied to a ratio of QRE to gross receipts for the period 1984 – 1988 is that the base becomes outdated or too rigid for some companies. For example, because product mix and research strategies change over time, requiring all taxpayers to use a fixed period of 1984 through 1988 in calculating the credit can demand unrealistic activities

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<sup>62</sup> Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 31, 1981, page 120.

<sup>63</sup> Office of Technology Assessment, *The Effectiveness of Research and Experimentation Tax Credits*, September 1995, page 55.

in future years in order to obtain any incentive for research. For example, the product mix and research spending and strategy for many aerospace and defense companies has changed since 1984 due to decreased defense spending by the government. However, the current version of the research credit ignores this fact and requires such companies to engage in unrealistic levels of research spending in order to receive any incentive for their research.

Because the research tax credit provides an incentive for research spending beyond the taxpayer's base amount, a credit might be denied to a taxpayer that has become more efficient at research, and thus spends less, but has actually increased research activity. Of course, it would be difficult to account for this change in the credit formula.

Queries: Should the base period be moved forward? Should a taxpayer be given the option of using a new base period? Should the incremental nature of the credit be eliminated to address this issue?

- 50% base amount limitation—If the actual base amount is less than 50% of the current year QRE, then 50% of current year QRE must be used as the base amount. For example, if a company's base amount is \$50 and its current year QRE is \$120, its base amount for calculating the credit is \$60 (50% of current year QRE), rather than \$50 (the actual base amount). Since a lower base amount generates a higher credit, the 50% base limitation reduces this taxpayer's research tax credit.

The 50% base amount limitation serves as a cap on the credit (basically limits it to 10% of QRE – which is then further reduced to 6.5% by §280C(c)). This 50% base rule serves to limit the credit for companies with a large increase in QRE over the base amount.

Example:           Base amount = \$10

                          Current QRE = \$20

                          Credit = 20% x \$10 = \$2

Modification:     Base amount = \$10

                          Current QRE = \$30

                          Credit = 20% x \$15 = \$3 (so additional \$10 of current QRE only generated \$1 of credit — 10%, not 20%)

A 1995 GAO study found that almost 60% of corporations were subject to the 50% minimum base rule.

Queries: Should the 50% base limitation be eliminated or modified? Is the incremental nature of the credit being carried out if almost 60% of firms, in effect, calculate the research tax credit at 10% of current year QRE?

- Fixed base percentage limitation—The maximum fixed base percentage is 16%. A required maximum is beneficial to taxpayers because the lower the fixed base percentage, the higher the credit. The question, is though, what should the maximum fixed base percentage be? Biotech companies have lobbied for many years to have the maximum reduced to 8%. “The 16% limit is based on tax qualified R&E. Since only approximately one-half of book R&E qualifies for the R&E Credit, the 16% limit, therefore, effectively requires companies to invest over 32% of future sales in book R&E to get ANY credit in the future. This is an impossible base amount to exceed on a long-term basis, since the industry average is only about 4% and as shown in the Business Week survey, no industry averages over 11% on a book basis.”<sup>64</sup>

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<sup>64</sup> Testimony of Harry H. Penner, Neurogen Corporation, before the Oversight Subcommittee of the House Ways and Means Committee, May 10, 1995; 95 TNT 92-67.

- Complexity of terms—The research credit involves numerous terms and definitions, such as for “qualified research.” After the term “qualified research” was tightened up in the TRA’86, it took over ten years to see regulations defining these terms. In the meantime, the courts ended up providing guidance with no effective mechanism for taxpayers to provide input on whether they believed the guidance followed congressional intent.

Query: Would the purpose of the credit be better served and costs of complying with and administering the credit minimized if the definition of qualified research were simplified or better tied to the definition of R&E at §174 (as was the case when enacted in 1981)?

- AMT—Changes in the alternative minimum tax (AMT) in the Tax Reform Act of 1986 caused more corporations to be subject to the AMT. The research tax credit cannot be used to offset AMT; any unused credit can be carried back three years and then carried forward 15 years. However, for corporations that are in an AMT position for several years, the research tax credit will only be usable in some future year (assuming the carryforward period does not expire for the taxpayer). The value of the credit in encouraging research is greatly reduced when the benefit will not be realizable for a company until a future year.

Query: Should the research credit be allowed to reduce AMT? Will doing so improve the incentive effect of the credit?

- Non-permanency— Research activities generally involve a long-term view; thus, research incentives that focus on the short-term cannot be fully beneficial and effective. Also, in making long-term plans, a short-term and uncertain incentive will not factor completely into all aspects of the decision-making process. Therefore, with only a temporary credit, the complete goal of increasing research activities may not be fully realizable by businesses, and ultimately, the U.S. economy. Additional support for a permanent credit is the premise that increased research activity increases productivity and growth in GDP, wages and labor skills.

Also, arguably, lack of a permanent incentive puts the U.S. at a competitive disadvantage in the global economy because many countries offer permanent incentives. Many of these countries actively pursue U.S. companies encouraging them to open R & D facilities in their country and to take advantage of tax savings opportunities..

“Foreign governments are competing fiercely for U.S. research investments by offering tax and other financial incentives. We can no longer assume American companies will automatically choose to site their R&D in the U.S. A permanent, robust U.S. R&D tax credit is essential to help ensure that U.S. companies keep the majority of their R&D function, and R&D jobs, in the U.S.”<sup>65</sup>

Query: Should the current version of the research credit be made permanent?

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<sup>65</sup> Statement of Congressman Neal (MA), before House Subcommittee on Oversight, Committee on Ways and Means, May 10, 1995; 95 TNT 92-59.

## Policy as Evident from the Government Spending Picture

There appears to be a consensus that there is an economic rationale for government support of research, such as by a tax credit. In a 1985 study on the effectiveness of the credit, the Joint Economic Committee stated:

“[T]he total rate of return on private R&D greatly exceeds the private rate of return. That is, private R&D gives rise to benefits to society at large well in excess of the profits it generates for the company that funds the R&D. Such "spillover benefits" or "neighborhood effects" thereby put R&D into the class of goods such as public health and sanitation, education, clean air and water, and defense that fall into the sphere of governmental responsibility.”<sup>66</sup>

Various government and private studies have indicated that government incentives for research are justified in that society's rate of return on research exceeds that of the company incurring the research costs and risks. Thus, the company conducting the research and incurring the costs will not be able to completely reap the rewards of its research because some of the benefit will spill over to others. For example, although research leading to an innovative new drug can be protected by a patent to help a company obtain the economic benefits of its research, the fruits of the research will be enjoyed by others upon the patent's expiration. Because a company may not receive all of the return from its research investment, but will instead share some of it with society, there is justification for public support of such research.

Of course, despite the economic basis for government support of research, the question remains as to how best to support it and how much support should be given. As noted in a recent Congressional Research Service report, very little support for research is provided by the government via the tax credit.

“Within the broad spectrum of federal support for R&D, the credit has played a relatively minor role in dollar terms since its inception in July 1981. This can be readily seen by comparing the cost of the credit (measured in equivalent federal outlays) to total federal spending on R&D.<sup>13</sup> In FY 1998, according to estimates by the U.S. Office of Management and Budget, the outlay equivalent of the credit totaled \$3.3 billion, or 4.3% of federal R&D outlays that year. From FY 1993 through FY 1997, the outlay equivalent of the credit averaged 2.5% of federal R&D spending.”<sup>67</sup>

<sup>13</sup> The outlay equivalent of the R&E tax credit is the federal dollars that would have to be spent to give firms the same after-tax benefits provided by the credit. In effect, it estimates how much the federal government would have to spend to duplicate the added research stimulated by the credit. See Office of Management and the Budget, *budget of the United States Government, Fiscal year 2000: Analytical Perspectives*. Washington, U.S. Govt. Print. Off., 1999. P. 116-117.

Policy Queries: What is the best way to provide a subsidy and incentive for private research spending? Does the research tax credit sufficiently reflect market forces that ideally are causing funds to be directed to their best effort?

## Has the Research Tax Credit Accomplished its Policy Goals?

Both government and private studies have shown that the research tax credit has had an impact on the amount of research conducted. A 1989 General Accounting Office (GAO) report, "The Research Tax

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<sup>66</sup> "The R&D Tax Credit: An Evaluation of Evidence On Its Effectiveness," A Staff Study prepared for the use of the Joint Economic Committee, 8/23/85, page 4.

<sup>67</sup> Gary Guenther, *The Research and Experimentation Tax Credit: Current Law and Selected Policy Issues for Congress*, CRS Report, March 20, 2000.

Credit Has Stimulated Some Additional Research Spending," stated that the research credit "raised corporate spending on R&E above the level that otherwise would have been achieved."<sup>68</sup> This study, based on a sample of 800 corporations and economic models, concluded that the credit "stimulated between \$1 billion and \$2.5 billion of additional spending for the 5 years 1981 through 1985." Such an increase represented an increase of 15 cents to 36 cents for every dollar of foregone tax revenue due to the credit.<sup>69</sup>

A 1994 private study concluded that the GAO study underestimated the benefits of the research tax credit. This study estimated that the credit stimulated additional spending of about \$2 billion per year with foregone tax revenues of about \$1 billion per year.<sup>70</sup>

As noted in two government reports, studies of the research credit may not have captured its complete benefits because of the sometimes long lead times for research projects and changes made to the credit since 1981, particularly in 1989.<sup>71</sup> A 1993 report noted that the 1989 changes likely increased the credit's incentive effect "substantially" and may have increased the credit's impact "beyond what is shown by the existing data."<sup>72</sup>

## Conclusion

The federal research tax credit is intended to encourage increased research spending in the U.S. This incentive was intended to serve to help companies overcome the reluctance to incur significant costs of research for uncertain rewards. "The Congress believed that the provisions of the Act, which are designed to stimulate a higher rate of capital formation and increased productivity, appropriately include incentives for greater private activity in research by operating businesses."<sup>73</sup> As noted in this outline, there are several issues regarding the operation of the credit which may limit the ability of the credit to best reach the goal established for it back in 1981 which has been re-emphasized in later legislative changes to the credit. An understanding of the policy behind the credit as evidenced from legislative histories to Acts modifying the credit indicate a fairly constant intent since 1981. The operation of the credit calculation, use of ambiguous terms, and the non-permanence of the credit though, call into question whether the goal of encouraging increased research in the private sector is best being achieved.

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<sup>68</sup> "The Research Tax Credit Has Stimulated Some Additional Research Spending," by GAO, GAO/GGD-89-114, Sept. 1989, pg. 22.

<sup>69</sup> 1989 GAO report, *supra*, pg. 22.

<sup>70</sup> "R&D Tax Policy During the 1980s: Success or Failure," by Bronwyn H. Hall, National Bureau of Economic Research, Reprint No. 1872, April 1994, pg. 29. The author also noted that the investment incentives of the research tax credit should also consider the interaction of the foreign tax credit and the AMT. Pgs. 28 - 30.

<sup>71</sup> Prior to the 1989 changes to the research tax credit, the amount of the credit was based on a rolling base period of research expenditures. There was some disincentive built into such a system because more dollars spent on research today would result in a smaller credit in future years. "The R&D Tax Credit: An Evaluation of Evidence On Its Effectiveness," A Staff Study prepared for the use of the Joint Economic Committee, 8/23/85, page 4., also noted that the temporary nature of the credit "has detracted from its effectiveness" (pg. 1).

<sup>72</sup> "The R&D Tax Credit: An Evaluation of Evidence On Its Effectiveness," A Staff Study prepared for the use of the Joint Economic Committee, 8/23/85, page 1 and Congressional Research Service Issue Brief "The Research and Experimentation Tax Credit," by D. Brumbaugh, November 17, 1993.

<sup>73</sup> Joint Committee on Taxation, *General Explanation of the Economic Recovery Tax Act of 1981* (JCS-71-81), December 31, 1981, page 120.