NBSIR 75-778

ETIP: THE FIRST 18 MONTHS
A Progress Report of The Experimental Technology Incentives Program, National Bureau of Standards

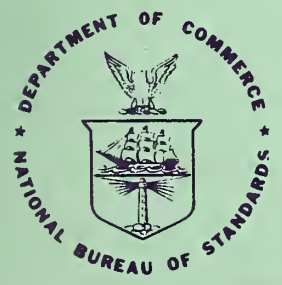
Jordan D. Lewis

Office of Experimental Technology Incentives Program
National Bureau of Standards
Washington, D. C. 20234

August 1975

Interim

Prepared by
Experimental Technology Incentives Program



U S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

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U.S. DEPARTMENT OF COMMERCE, Rogers C.B. Morton, *Secretary*
James A. Baker, III, *Under Secretary*
Dr. Betsy Ancker-Johnson, *Assistant Secretary for Science and Technology*

NATIONAL BUREAU OF STANDARDS, Ernest Ambler, *Acting Director*

ABSTRACT

In February 1974, the official Program Plan for the Experimental Technology Incentives Program (ETIP) was approved by the National Bureau of Standards, the Department of Commerce, and the Office of Management and Budget. At that time, funds were made available for the conduct of ETIP under that Plan. The purpose of this paper is to review ETIP's performance since that time, a period of 18 months. The basis for this review will be the Program Plan itself.

PROGRAM BACKGROUND AND PURPOSE

Given that technological change is a key ingredient in the progress of a developed economy, ETIP's goal is "The development of a set of technological change policy recommendations and the body of knowledge necessary for their effective use."* Further, "while ETIP will, in the course of its experimentation, stimulate changes in technology, such changes are a by-product of its primary task. The significant output of ETIP must be pragmatic and effective methodologies that the Federal Government can use in stimulating the entire process of technological change...within the economy in general."

During the past 18 months ETIP has developed a preliminary set of "technological change policy recommendations" and has embarked upon a series of experiments and studies designed to begin testing and examining these and identifying others. This preliminary set of recommendations is outlined below.

INITIAL POLICY AREAS AND PRELIMINARY RECOMMENDATIONS

ETIP has selected a number of areas in which to concentrate its early activities. These areas and related policy recommendations are:

Procurement

Government is the largest purchaser of most civilian goods produced in the Nation. Traditionally, government practices have emphasized lowest purchase price, which in turn has meant older technology and less cost-effective products. But government purchasing could lead the market, thereby reducing market entry risks for new products while simultaneously obtaining greater value for the taxpayers' dollar.

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*All statements in quotation are drawn from the Program Plan.

ETIP is currently conducting and planning a series of procurement experiments to test the following policy recommendations:

(1) An increased use should be made of performance specifications, which describe how a product is to work (in contrast to design specifications which describe how it is to be made) in government purchasing, so as to give suppliers increased opportunities to innovate.

(2) Life-cycle costing (LCC), which provides for contract awards for those products having the lowest total ownership cost (purchase price plus discounted operating and maintenance costs, etc.) should be used whenever possible as a basis for contract awards rather than merely lowest purchase price.

(3) Use should be made of value incentive clauses (VIC), which provide for a sharing with contractors of 50 percent of any cost-saving innovations introduced into their products.

(4) System purchasing, in which a collection of distinct products intended to operate together as an entity (e.g., clinical laboratory, office building) is purchased under a single comprehensive performance specification, should be used whenever appropriate.

(5) Whenever possible and practical, innovation purchasing should be used. Briefly, innovation purchasing involves the agency in actively seeking or responding to product innovations which are not currently on the market but which appear to offer advantages over established products in meeting user needs.

(6) The Government should communicate cost, performance, and other experience information gleaned from its use of civilian products to the general marketplace.

(7) The Government should be an early user of product-related features that might influence product innovation (such as mandated warranties) so as to help clarify their attributes, significance and impact.

(8) The Government should encourage and facilitate the aggregation of public and quasi-public markets (such as State and local governments, hospitals) so as to reduce duplications of effort in specification and test method development and to reduce fragmentation of demand.

Regulation

While serving to protect the public from undue economic or physical harm, regulatory agencies frequently impose unnecessary costs, uncertainties, delays, and constraints on technological change. The estimated unnecessary costs alone amount to billions per year.

ETIP's regulatory experiments and studies that are underway, planned, or anticipated are intended to test or examine one or more of the following or related recommendations:

(1) Accelerate and improve the quality of regulatory standards development to reduce uncertainties and delays in the regulatory process.

(2) Increase the codification of and otherwise facilitate the meeting of certification requirements. (In certification regulation, a government license is required prior to sale or use; in standards regulation, a firm must assure that a product or process meets specified standards before it can be sold or used. The agency is responsible for proving non-compliance once the product has been sold or the process initiated.)

(3) Make better use of available information (e.g., foreign data from similar situations) in the certification process.

(4) Consider alternatives to regulation that in a given instance might accomplish the same purpose. For example, it might be desirable to provide crop insurance against pest damage rather than use pesticides in some instances.

(5) Pursue a careful consideration as to whether standards or certification regulation is required in a given instance. In such consideration it should be noted that certification regulation is employed when the social costs of noncompliance are deemed too high to warrant the use of the less stringent standards regulation. Examples include standards regulation for autos and effluents, and certification for aircraft and pesticides.

(6) Reduce overlapping authorities of different regulatory agencies or coordinate their efforts when they do overlap so as to reduce confusion and delays in the process.

(7) Consider structural changes in the administrative authority and procedures of the independent regulatory commissions to facilitate creative regulatory responses to changing market/economic conditions, to reduce ambiguities in decisions, and to generally speed up the regulatory process.

(8) Develop means for assessing the cumulative impact of numerous individual regulatory decisions on a given economic sector.

(9) Wherever possible employ general rule-making rather than relying on case-by-case decisionmaking.

(10) Employ electronic data processing systems to process information and expedite proceedings depending upon large volumes of information.

(11) The relationship between regulatory agencies and consensus standards bodies should be made explicit. The vagueness of present relationships causes considerable confusion and delay in the regulatory process.

(12) To the extent feasible, mandatory standards should be performance based. This allows continued innovation once the standards are adopted. In addition guidelines should be provided which are sufficient (but not necessary) ways of meeting the mandatory requirements.

(13) Following a regulatory change, agencies rarely, if ever, conduct field surveys to determine the effect of the change in order to correct deficiencies therein. In view of the problems raised by regulation, this should be made a common practice.

(14) Precipitate coordinated decisionmaking between agencies that regulate different aspects of the same industry so as to facilitate innovation in that industry.

(15) Facilitate market entry and otherwise increase competition in economically regulated sectors.

(16) Require agencies to develop and publish an overall plan for implementing the statutes for which they are responsible. This plan would then underlie agency action, and a deviation from it without suitable explanation would be grounds for judicial reversal. This would provide a forum at which the basic principles of the regulation in question are determined. The parties interested in particular aspects of regulation could then appear at one time instead of keeping up with individual and isolated occurrences.

Civilian Research and Development

Unlike their defense and space counterparts, agencies that sponsor applied civilian R&D do not control the production of nor do they purchase the goods flowing from this R&D. Yet these agencies typically give little thought to the use of their R&D results before and during the conduct of the R&D. As a consequence the application of this R&D, which amounts to some $5 billion per year, is widely recognized as being very poor.

ETIP's interests with respect to civilian R&D focus on tentative policy recommendations such as:

(1) Create formal R&D market planning functions in R&D agencies, these functions to be charged with identifying and assessing user priorities, determining the availability of capital, labor, and other resources needed to convert R&D results into user goods, characterizing the likelihood that the organizations to be involved will marshall these resources to these ends, and thus define R&D program objectives, strategies, and priorities, and etermine appropriate R&D resource allocations.

(2) Require substantial non-federal cost-sharing in development and demonstration projects.

(3) View demonstration projects as field experiments that are experimenting with the field, and conduct them only when technological uncertainties have been reduced to low levels.

(4) Obtain strong user involvement in the design of R&D programs.

Small Technology-Based Businesses

Small technology-based businesses, which have been key contributors of important innovations, find it increasingly difficult to raise venture and equity capital. They also face regulatory compliance costs that are proportionately greater than for larger firms.

ETIP's interests in this category focus on:

(1) Reducing unnecessary barriers to the flow of capital to these firms.

(2) Facilitating compliance by small firms required by Government regulations to invest in technological change.

Financial Assistance

Through grants and subsidies the Federal Government provides close to $100 billion annually to State and local governments, utilities, industries, and others for the creation, acquisition, or operation of capital goods. In providing this financial assistance, little thought is given to how it affects technological change.

In developing this policy area, ETIP is interested in studies and experiments that would illuminate policy recommendations such as:

(1) Develop specific guidelines for determining when financial assistance should be provided in lieu of regulation.

(2) Develop specific guidelines for determining how financial assistance should be provided in conjunction with regulation.

(3) Develop specific guidelines for determining how financial assistance should best be employed in conjunction with incentive-type procurement policies employed by State and local governments and other organizations receiving such assistance.

(4) Develop specific guidelines for coordinating Federal R&D sponsorship and financial assistance programs.

(5) Develop specific guidelines for determining when financial assistance should be provided to the producers of a good and when to the users.

Advanced Planning and Research

In addition to the above, ETIP is undertaking other efforts in order "to provide an improved basis for choosing policy questions for future investigation as well as to permit more effective direction and evaluation of the already selected policy areas."

ETIP's work in this category, as well as the policy areas discussed above, is detailed in the appendix to this report.

PROGRAM STRATEGY

Development

The Program Plan states that "ETIP must provide both for the development of new policy guidelines and for their adoption by those agencies that are to use them...".

In the development context, all ETIP projects that are exploring new ground "rest on existing supported hypotheses in the research literature..." as well as hypotheses developed by ETIP and others "that have significant apparent validity in the federal context." Further, "specific policies contained within the scope of agencies" have been "formulated consistent with those hypotheses." As proposed in the Program Plan, a series of field experiments has been initiated, and evaluation efforts have begun to "analyze the factors contributing to the variance between theory and experience."

Adoption

"In order that the responsible agency be thoroughly prepared to adopt the new policy guidelines...ETIP (involves) the responsible agency at the earliest possible stage in the design and definition of the...projects relevant to the agency's mission." Indeed in every such instance the relevant agency is "an active collaborative partner in the conduct of the relevant projects and the analysis of the results." Further, in order "to develop an organizational commitment" to applying the project results, each agency is asked, where feasible, to commit agency resources to the project, a step which also increases the leverage of ETIP's efforts."

The list below describes ETIP and other agency resources that have been committed to cooperative projects over the past 18 months. Detailed descriptions of these projects may be found in the appendix.

Procurement Projects

Project	Cooperating Agency	ETIP Resources	Agency Resources
36	Public Building Service	$175,000	$476,000 + staff
59	Federal Supply Service	$ 16,500	$ 1,500 + staff
63	Federal Supply Service	$200,000	$ 25,000 "
64	Federal Supply Service	$ 66,000	$ 10,000 "
71	Federal Supply Service	$100,000	$ 10,000 "
80	Veterans Administration	$450,000	3 staff positions

Regulatory Projects

Project	Cooperating Agency	ETIP Resources	Agency Resources
31	Federal Railroad Admin.	$150,000	$500,000 + staff
48	Environmental Protection Agency	$250,000	$110,000 "
85	Occupational Safety & Health Administration	$200,000	$215,000 "

Civilian R&D Projects

Project	Cooperating Agency	ETIP Resources	Agency Resources
7	Clemson University	$475,000	Members of the Clemson Consortium are contributing fibers, chemicals and cloth for testing.
13	National Science Foundation	$ 99,350	$99,350
67	Department of Health, Education, & Welfare	$220,000	Part-time of Chief, Development Division, Office of Planning & Development, OFEPM/ DHEW

Small Business Projects

Project	Cooperating Agency	ETIP Resources	Agency Resources
27	Small Business Admin.	$150,000	Staff
28	Small Business Admin.	$200,000	Staff
32	Connecticut Product Development Corporation Economic Development Administration State Funds	$300,000	 $200,000 $500,000 bond issue
46	Small Business Admin.	$375,000	Staff
77	Small Business Admin.	$ 10,000	6,000 envelopes for mailing & printing of 6,000 invitations for Symposium.

In the conduct of these cooperative projects, each agency "provides a 'project champion' from its staff to serve as liaison with ETIP, provides for continuity of involvement over the life of the project, and identifies the agency with the project in formal communications. Further, in all cooperative projects, ETIP's agency partners "assume lead-agency responsibility" for the respective projects.

Performance Measures

"The primary measure of ETIP's success will be the number and quality of the ETIP policy guidelines adopted and used." Although 18 months is admittedly a rather brief period for applying this measure, the following can be noted:

(1) The use of life cycle costing has begun at GSA and is becoming widespread. This is already saving the Government millions of dollars and has brought about technological change in the marketplace.

(2) Value incentive clauses have been introduced at the Federal Supply Service of GSA and have become mandatory for all contracts employing specifications and valued over $100,000. They will become mandatory for all such contracts for the entire Government within a few months.

(3) The Federal Supply Service (FSS) has created the National Furniture Center as the first of a series of commodity centers. These provide a focal point for manufacturers from a given sector and government agencies to discuss related issues so as to facilitate competition and information flow. Other center to be created will handle tools, automotive supplies, office and paper products, and office equipment.

(4) A marketing research capability has been created at FSS so as to improve the identification of user needs and the translation of these into incentive-type specifications.

(5) The Energy Research and Development Administration has requested guidelines for the design and conduct of demonstration projects.

(6) The Veteran's Administration has created an experimental procurement function to manage a major series of procurement experiments that will test the ability of this largest purchaser of health care products in the Nation to influence product development and use across the health field.

APPENDIX

Individual Project Reports

EXPLANATION OF MILESTONE SYMBOLS

▲- Completed milestone

△- Incomplete milestone

△-△- Postponed milestone

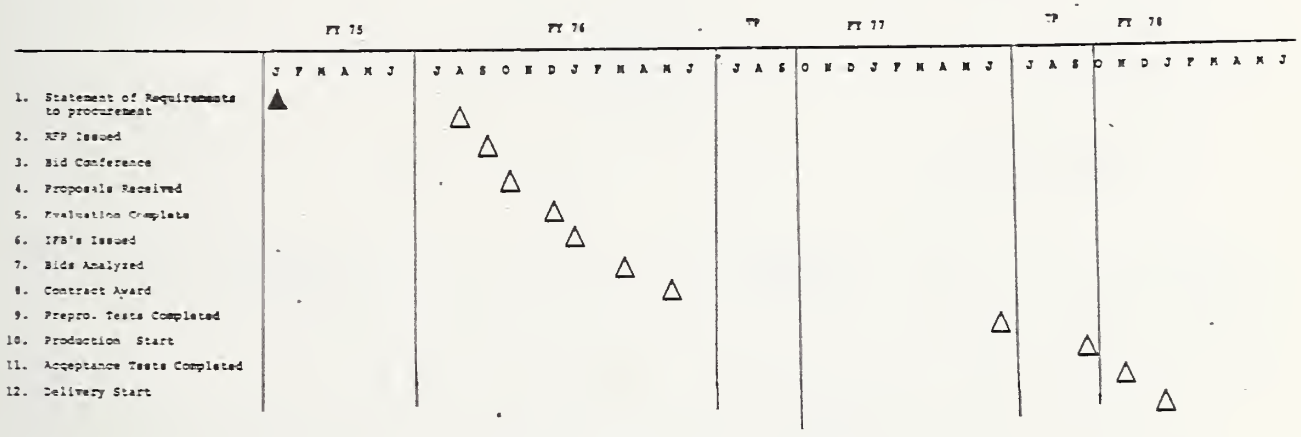
△-▲- Postponed and completed milestone

PROCUREMENT AREA

1. Power Lawnmower Experiment

Purpose: To determine if federal procurement, through the use of performance specifications, can provide incentives to industry to develop new technology that will reduce noise pollution in lawnmowers.

Milestones:



Progress: This project has been delayed because of two factors:

1) The FSS Legal ruling questioning the payment of a premium for noise reduction. They claim this can only be done when a noise level has been certified by EPA.

2) The attempt by the FSS Ft. Worth regional office to include the lawnmowers in this experiment in their IFB for lawnmowers and garden equipment.

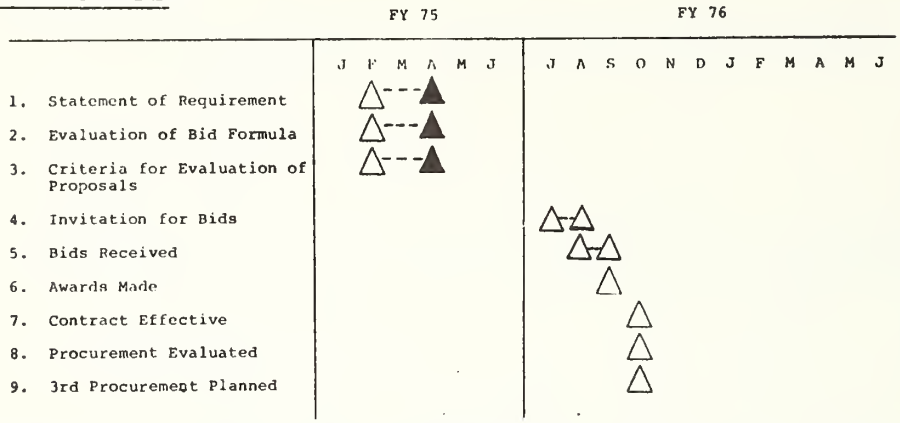
With respect to the first problem, (FSS Legal ruling) arrangements are being made to have FSS and EPA attorneys resolve this issue. The power mowers to be procured in this experiment have been removed from the Ft. Worth IFB.

A letter was mailed to lawnmower manufacturers briefly outlining the proposed specifications and asking them to advise if they would be interested in submitting a technical proposal. This is not to be construed as the first step of a two step proposal. It was merely an attempt to determine industry reaction before a formal RFP was issued. In conjunction with this letter to the manufacturers, we forwarded an article explaining ETIP to the Outdoor Power Equipment Institute so they could publish it in their trade journal. Four firms responded positively while others suggested the experiment be delayed pending issuance of safey standard by CPSC.

2. Window Air Conditioner Experiment

Purpose: To determine if a reduction of energy consumption can be achieved through performance specifications.

Milestones:



Progress: The first procurement cycle has been completed and one year contracts were awarded for the period, November 1, 1974 through October 31, 1975. The annual usage was estimated at 27000 units. The key elements of this award were:

- Contracts awarded to General Electric (est. contract value - $2,533,000) and to Fedders Corp. (est. contract value - $3,980,000)
- Average 21% reduction in energy consumption over those units purchased last year.
- Estimated net savings of $400,000 over the expected seven year life of the units.

IFB's for the second procurement were scheduled to be issued in July but were rescheduled for August necessitating a change in the schedule for Bids Received. Industry suggested to Procurement to issue the IFB a little later than usual to take advantage of new models for the coming year. The IFB's for the second procurement are being printed.

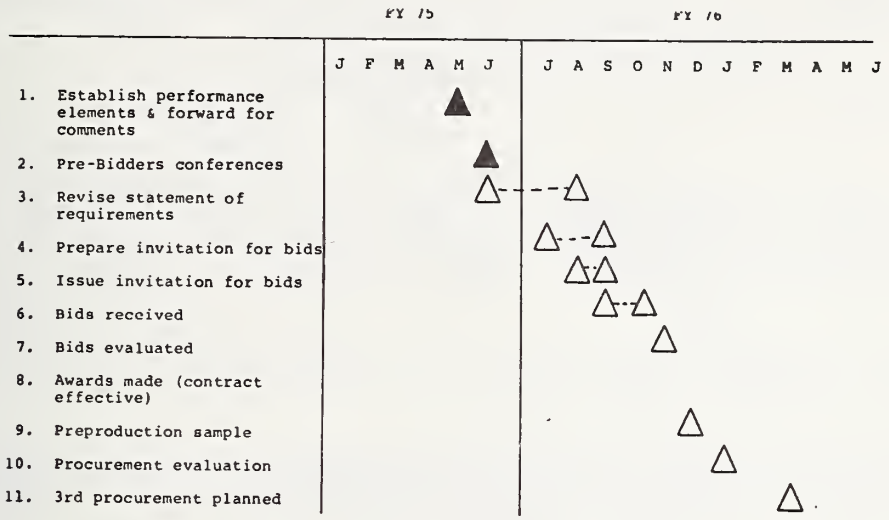
The Industry Survey for the first procurement was completed and has been issued. Major findings were:

- Insufficient lead time to develop new technology.
- Significant amount of paperwork was cited most frequently as the reason for not bidding.
- Industry favored the use of LCC in the procurement of air conditioners.
- Efficient room air conditioners are generally quieter than low EER models.
- Indefinite number of units was considered a problem by the manufacturers.

3. Frostless Refrigerator Experiment

Purpose: To determine if a reduction of energy consumption can be achieved through performance specifications.

Milestones:



Progress: The first procurement cycle has been completed, and one year contracts were awarded to Philco-Ford ($421,000); General Electric ($2,611,000) and Hotpoint ($1,269,000). The estimated annual usage was 14,300 units. No savings were realized as the low LCC bidder was also the low bidder. Another factor was the absence of bidders (Hotpoint, G.E. and Philco-Ford). The contract award to G.E. was protested by Philco-Ford because they felt G.E. overstated the efficiency of their units. Testing of the refrigerators has been completed and we are awaiting a resolution of the protest by GAO.

The second procurement cycle has been started and a milestone slippage has occurred with entry #3 "Revise Statement of Requirements" (specifications). The "Statement of Requirements" has been sent to Natick Labs for their comments which are not expected until the second week in August. This slippage also caused a change in milestones #4, #5, and #6.

An Industry Survey has been started with Philco-Ford as the first firm to be visited during the week of 8/11/75. The objectives of the survey are:

- To determine industry attitude toward the procurement and to identify potential bidders.
- To determine from the winning bidder how new technology procured by the Government will be transferred to the consumer.
- To obtain sales figures from the companies visited to assist in development of the market environment.
- To gather information about the state of technology.

In cooperation with the Appliance Labeling and Energy Efficiency Programs at NBS, the Industry Survey will also include questions regarding these two programs.

4. Home Water Heater Experiment

Purpose: To determine if a reduction of energy consumption can be achieved through performance specifications.

Milestones: Milestone chart for second procurement being developed.

Progress: The first procurement cycle has been completed and a one year contract was awarded to A. O. Smith ($817,000) for an estimated 7700 water heaters. The contract covers the period February 1975 through January 1976. The key elements of the award were:

- One of the leading manufacturers in the country, A.O. Smith, bid for the first time.
- Average 11% reduction in energy consumed over units which would have been purchased using low bid approach.
- Estimated net savings of $326,000 over the expected 10 life of the units.
- Gas Heaters sold in France previously will now be marketed in the U.S. by A. O. Smith as a result of this contract award.

An industry survey will be conducted in August and September with the following objectives:

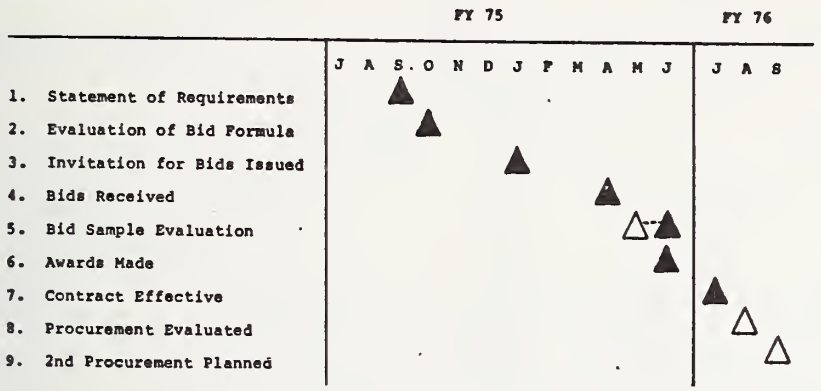
- To determine industry attitude toward the procurement and to identify potential bidders.
- To determine from the winning bidder how the new technology procured by the government will be tranferred to the consumer.
- To obtain sales figures from the companies visited to assist in development of the market environment.
- To gather information about the state of technology.

In cooperation with the Appliance Labeling and Energy Efficiency Programs at NBS, the industry survey will also include questions regarding these two programs.

5. Household Ranges (Electric) Experiment

Purpose: To determine if a reduction of energy consumption can be achieved through performance specifications.

Milestones:



Progress: The first procurement cycle has been completed and contracts were awarded to Sunray Stove ($549,000) and General Electric ($178,000). The contracts were effective in July, 1975, and will run through June, 1976. Total estimated annual usage is 3720 units. The key elements of the award were:

- Average 7% reduction in energy consumption over units which would have been purchased using the low bid approach.
- Estimated net savings of $121,000 over the expected 12 year life of the units was realized.

An industry survey will be conducted in August and September with the following objectives:

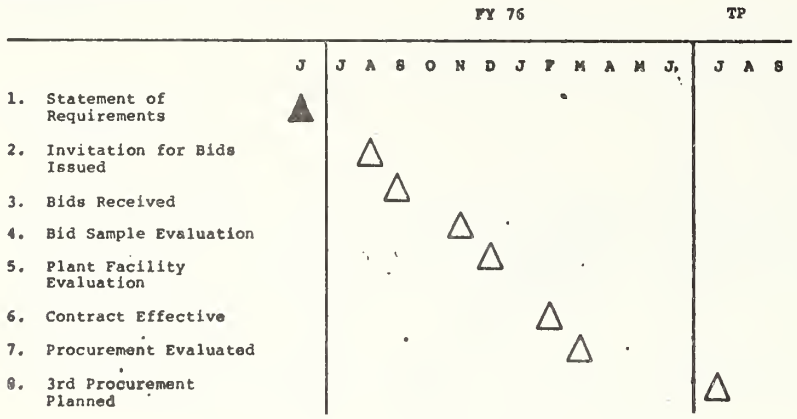
- To determine industry attitude toward the procurement and to identify potential bidders.
- To determine from the winning bidder how the new technology procured by the government will be transferred to the consumer.
- To obtain sales figures from the companies visited to assist in development of the market environment.
- To gather information about the state of technology.

In cooperation with the Appliance Labeling and Energy Efficiency Programs at NBS, the industry survey will also include questions regarding these two programs.

5. Household Ranges (Gas) Experiment

Purpose: To determine if a reduction of energy consumption can be achieved through performance specifications.

Milestones:



Progress: The first procurement cycle has been completed and one year contracts were awarded to Sunray Stove ($1,400,000); Roper Sales ($2,151,000); and Crown Stove Works ($982,000). The contracts cover the period of February 1, 1975 through January 1, 1976, and were for a total estimated usage of 22,200 units. The key elements of the award were:

- Average 7% reduction in energy consumption over units which would have been purchased using the low bid approach.
- Estimated net savings of $619,000 over the expected 12 year life of the units was realized.

Studies by the Northern Natural Gas Company and American Gas Association indicate pilot lights consume between 30-50% of all energy consumed by the range. In view of this we are attempting to revise the LCC formula to include a factor for pilot efficiency. We are also sending a letter to industry seeking information regarding gas range technology.

State procurement groups do not purchase commercial gas ranges, therefore, our idea of sending out a joint NASPO/FSS/ETIP letter has been discontinued for this product.

An industry survey will be conducted in August and September with the following objectives:

- To determine industry attitude toward the procurement and to identify potential bidders.
- To determine from the winning bidder how the new technology procured by the Government will be transferred to the consumer.
- To obtain sales figures from the companies visited to assist in development of the market environment.
- To gather information about the state of technology.

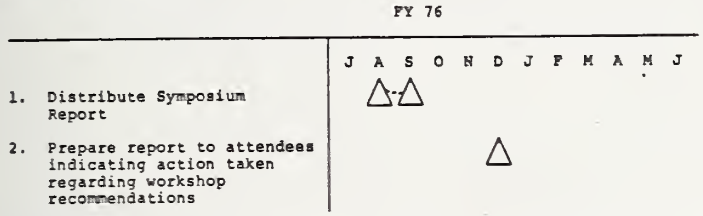
In cooperating with the Appliance Labeling and Energy Efficiency Programs at NBS, the Industry Survey will also include questions regarding these two programs.

29. Symposium - Federal, State, Local and Industry

A) January 1975 Symposium

Purpose: To open government/industry dialogue on ways to encourage technological innovation in products purchased by the Government.

Milestones:

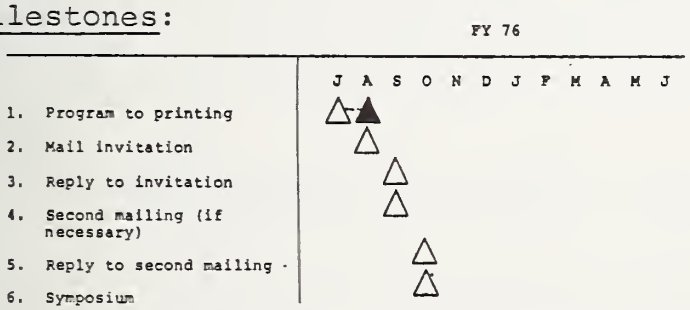


Progress: The Report for the January Symposium has been submitted to Special Services for printing. In view of the number of impressions required (80,000) the Report was forwarded through channels to GPO for printing. GPO has subcontracted the printing of the Report to a private firm, and we have been informed delivery has been promised for 9/1/75.

B) October 1975

Purpose: Government, Hospitals, and Industry - a joint effort toward technological innovation in product and systems development - to meet hospitals' demands and to provide industry incentives for the benefit of all who deliver and require health care.

Milestones:



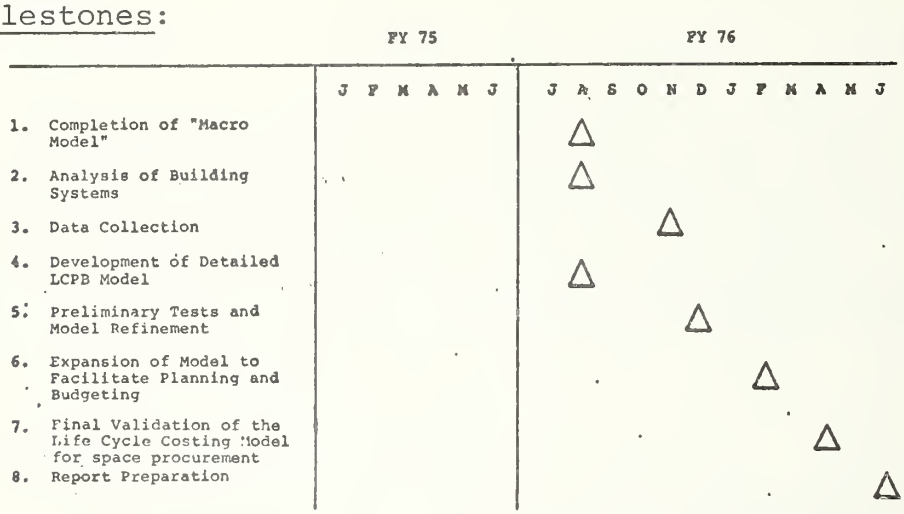
Progress: The Symposium Program was scheduled to go to printing July 15 but was delayed because of our attempts to obtain Congressman Paul Rogers as keynote speaker. Congressman Rogers has a prior speaking enegagement and cannot be our keynote speaker. A letter has been sent to Senator J. Glenn Beall of Maryland requesting him to be our keynote speaker.

- The Symposium Program has been printed, and was delivered to us on 8/15/75.
- The invitation letters will be mailed out on 8/15/75 with a response date of 9/15/75.
- The invitation letters to the proposed co-chairmen have been mailed.

36. Design and Use of Life Cycle Cost Models for the Planning and Acquisition of Federal Space

Purpose: To develop and test a Life Cycle Costing Model for space acquisiton and provide a forum for the introduction and evaluation of technological innovation in the construction industry.

Milestones:



Progress: The concepts, formulas and software relating to the life cycle model of space procurement has been developed and presented to PBS on July 21. This model will be tested, manually at first to establish certain accuracies of the building parameters chosen. After initial tests the model will be applied to three building situations over the next several months:

(1) A fictionalized site in Alexandria using the parameters of the Crystal Mall buildings so comparisons can be made,

(2) A real on going space procurement in Tallahassee, Florida, of about 200,000 square feet, and

(3) An actual procurement of space in Madison, Wisconsin.

GSA/PBS feels that in about 6 months the project will be ready for a major publicity campaign.

38. Design of Federal Procurement Experiments for Improved Health Care Delivery

Purpose: To provide for the design of plans for seven to ten projects for implementation by the Veterans Administration. The knowledge and experience gained from these and other procurement experiments will provide a data base for determining whether government procurement actions can stimulate socially or economically desirable technological change.

Progress: This project ended on June 30 after a one year contract with Ross Hofmann Associates. Twelve product write-ups for procurement have been prepared and delivered to VA for implementation as required. This contractor effort has been continued as ETIP project 81 for 18 months.

40. Design of Three Federal Procurement Experiments by Booz-Allen

Purpose: To design three additional experimental procurement plans for implementation by FSS.

Progress: Three experiments have been submitted:

(1) Biomedical Monitoring Systems
(See project #61 for status)

(2) Blood Tubes Procurement Experiment
(See project #62 for status)

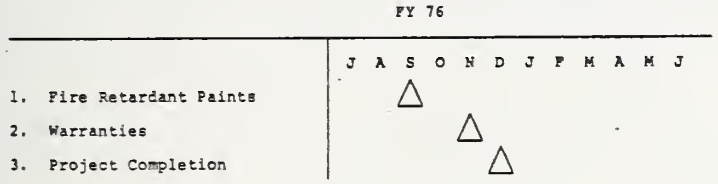
(3) Oscilloscopes
(See project #73 for status)

Project has been completed.

41. Design of Additional Federal Procurement Experiments

Purpose: To design three experimental product related procurement plans for implementation by FSS.

Milestones:



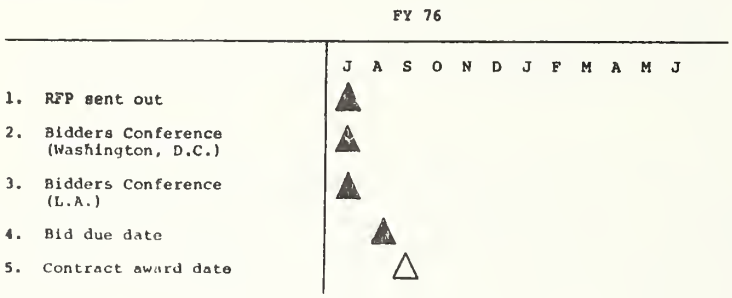
Progress: Experiment plans are being prepared for fire retardant paints and warranties. A discussion paper on warranties was prepared by Booz-Allen listing alternatives for an experiment with warranties and also stating the major issues. It was decided that we have very little FSS data on warranties and felt a study should be conducted which would result in procurement experiments. We have asked Booz-Allen to design a warranty study in lieu of an experiment plan for FSS/ETIP to conduct. In order to do this the Booz-Allen contract must be amended and we are in the process of negotiating this amendment with Booz-Allen.

The third experiment to be furnished under this project has been completed. See Office Copier Experiment (#82).

42. Designing and Testing a Systematic Procedure for Implementing Federal Procurement Experiments

Purpose: To identify, experiment with, and assess alternative means for regularly and routinely evaluating and ranking product change suggestions as the basis of market needs and costs and to explore other incentives.

Milestones:



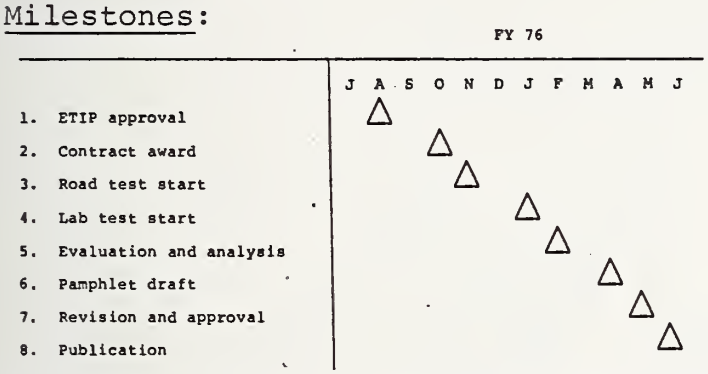
Progress: RFP has been issued and all bids are due 8/11/75. ETIP is represented on the Proposal Evaluation Panel and also the Steering Committee which will guide the project after a contract has been awarded.

58. Automobile Tires

Purpose: To revise Federal Supply Service policy for purchase of new tires to reflect the results of fuel consumption testing conducted by FSS between bias ply, belted bias, and radial tires.

To make available the results of such FSS testing in the consumers pamphlet series of publications issued by Federal Supply Service as an incentive for new technological innovation.

Milestones:

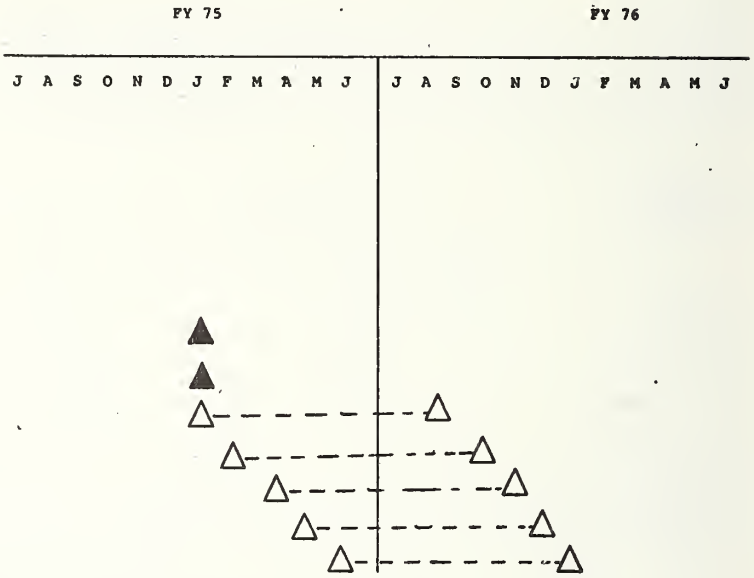


Progress: Project plan was submitted to the staff for comment. It was subsequently rewritten to reflect their comments and submitted to management for approval. It has been returned for additional information.

59. ADP Ribbon Procurement Experiment

Purpose: To test the use of Life Cycle Costing (LCC) or performance specifications as a means to stimulate new technology.

Milestones:

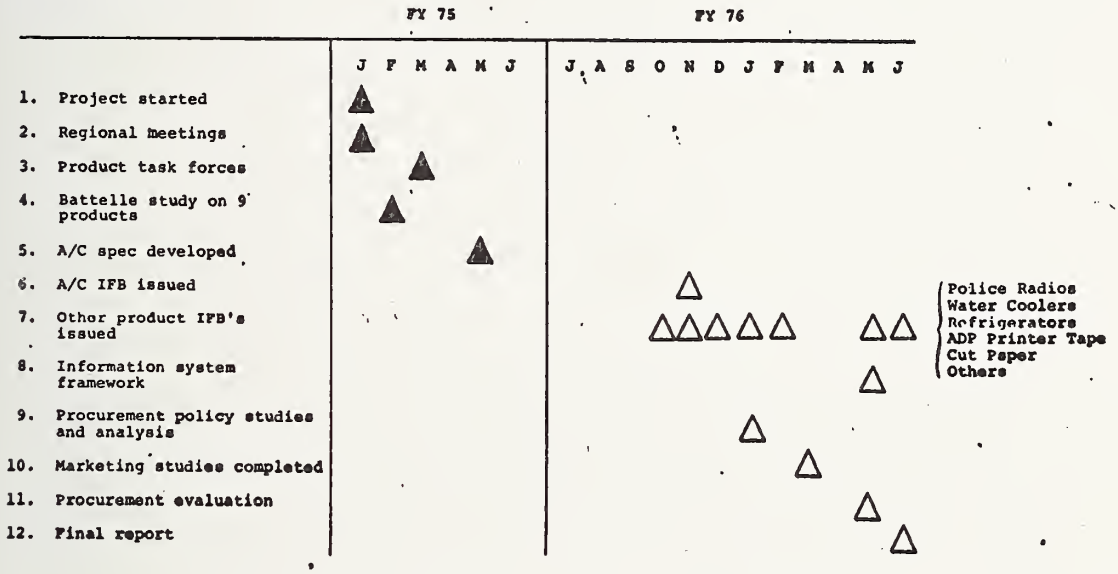


Progress: Funding constraints delayed definite quantity procurements. Authorization from FSS management was obtained in May, 1975 to proceed with this experiment as a definite quantity procurement. The statement of requirements and usage information has been forwarded to FSS Procurement for issuance of an IFB.

60. Public Market Aggregation as an Incentive for Technological Change

Purpose: To develop, test, and implement a national system to encourage technological change through the combined use of Federal and State purchasing power. Included in this system will be the continuous development and exchange of incentive type procurement specifications (e.g., performance specifications, life cycle costing, value change proposals, and test methods) among and between State government agencies and the Federal Government.

Milestones:



Progress:

- Regional meetings held to start project and select candidate products - 65 products
- Battelle product studies initiated.
- Product area task forces established, Electrical Products, Mechanical and Automotive Products, Communications Equipment Furnishings and Textiles, Medical and Scientific Equipment and Miscellaneous.
- Framework for Nationwide Purchasing Information System developed - NIGP, NBS, FSS and others to participate.
- A/C spec being reviewed by states prior to procurement.
- Eight additional specs due for State review by November and subsequent procurement.

61. Biomedical Monitoring Systems Procurement Experiment

Purpose: To gain experience in the use of procurement as a stimulant to desirable technological change.

After review of the Booz-Allen project plan, the procedure described therein was found to be undesirable. We have decided to incorporate this into Experiment #38, canceling this project.

62. Blood Tubes Procurement Experiment

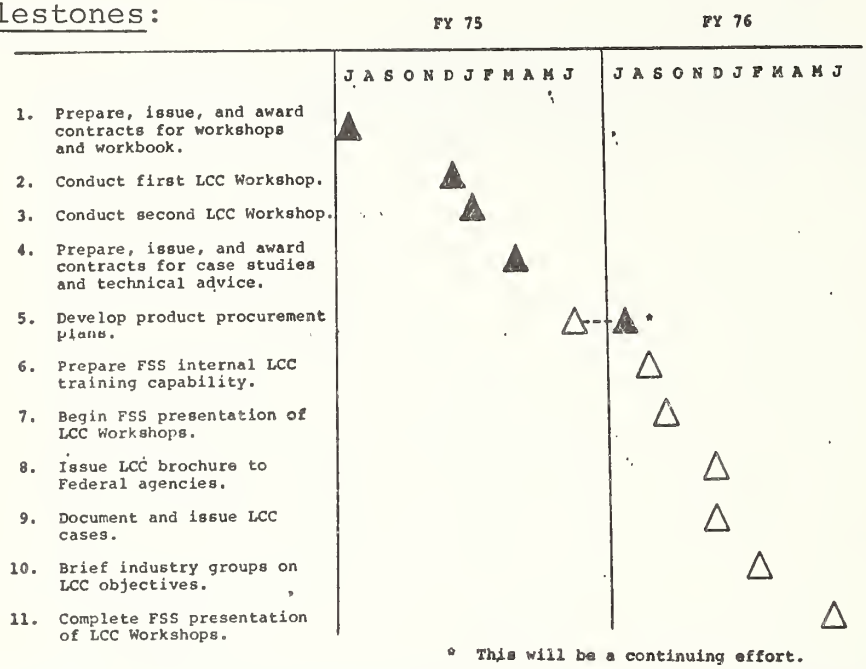
Purpose: To gain experience in the use of procurement as a stimulant to desirable technological change.

After review of the Booz-Allen project plan, the procedure described therein was found to be inadequate. We have decided to incorporate this into Experiment #38, canceling this project.

63. Internally-Oriented Life Cycle Costing Program for Federal Purchasing

Purpose: To develop and implement workshops and training seminars for FSS procurement personnel to develop a working knowledge and basis for formalizing life cycle costing in government procurement.

Milestones:



* This will be a continuing effort.

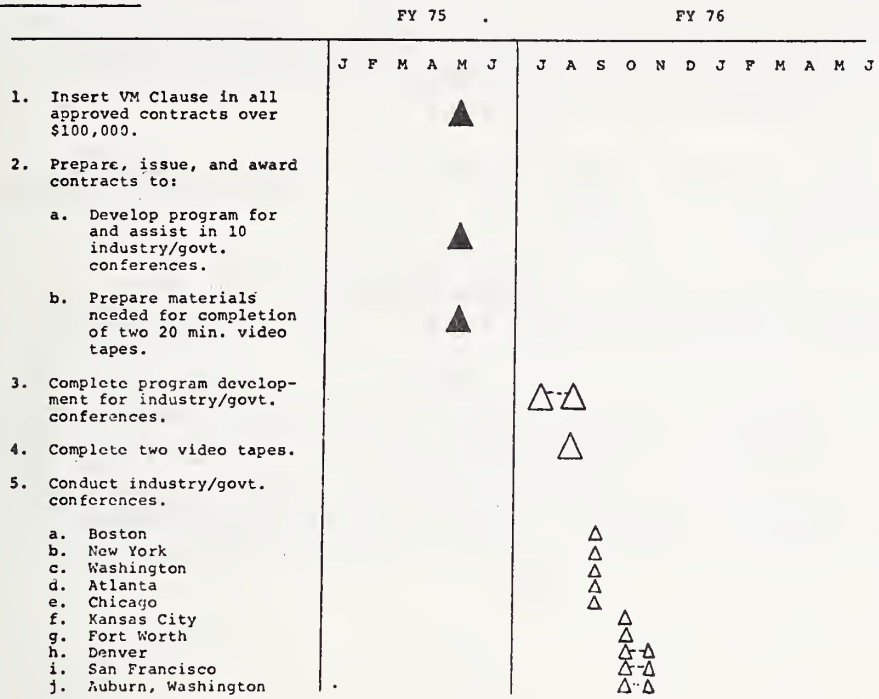
Progress: Two LCC Workshops (five day courses) were conducted in December, 1974 and January, 1975 with approximately 15 FSS personnel attending each course. FSS training personnel also attended to prepare for future presentation of LCC training courses at the 10 Regional Centers. An executive orientation session (four hours) was also conducted during the second workshop and approximately forty FSS executives attended the session. Ten products were selected in the two workshops as potential candidates for LCC. Status report of these products is attached.

Training personnel at FSS plan to conduct fourteen forty hour LCC workshops during fiscal year 1976. The schedule for these workshops is as follows:

Location	Date
Atlanta	September 8-12, 1975
Central Office, Washington, D.C.	September 22-26, 1975
Chicago	October 20-24, 1975
Seattle	October 20-24, 1975
New York	November 17-21, 1975
Central Office, Washington, D.C.	December 1-5, 1975
Washington, D.C	December 8-12, 1975
Central Office, Washington, D.C.	January 26-30, 1976
San Francisco	February 16-20, 1976
Central Office, Washington, D.C.	March 22-26, 1976
Kansas City	April 5-9, 1976
Fort Worth	April 5-9, 1976
Denver	May 10-14, 1976
Boston	May 17-21, 1976

Purpose: To develop the basis for institutionalizing the use of Value Incentive Clauses (VIC) within FSS, to develop a series of government/industry seminars to implement the program and to establish and coordinate internal processing procedures.

Milestones:



Progress: A GSA order has been issued covering the implementation of the contractual part of the Value Incentive Clause program. The order states that this clause shall be included in all advertised or negotiated definite quantity, and requirement solicitations that:

a. Contain item descriptions which reference Federal Specifications, Interim Federal Specifications, Military Specifications, drawings, or purchase descriptions developed within GSA.

b. May result in contracts exceeding $100,000. At the discretion of the procurement divisions directors, this clause may be used in solicitations which are estimated to result in contracts of less than $100,000. The clause will not be used in solicitations for Multiple Award Federal Supply Schedules, basic ordering agreements, research and development, testing, service or maintenance contracts.

The draft of a federal regulation which will be issued to all federal procurement agencies requiring the use of VIC has been prepared and is being reviewed.

70. Payment of Costs Incurred by the Federal Supply Service in Providing Background Information and Conducting Preliminary Studies on Potential ETIP Projects

Purpose: To provide FSS with funds to cover costs incurred in developing the background information needed prior to the development of ETIP project plans.

Milestones: These funds remain available until expended which was estimated to be about one year. Funds tranferred in June, 1974.

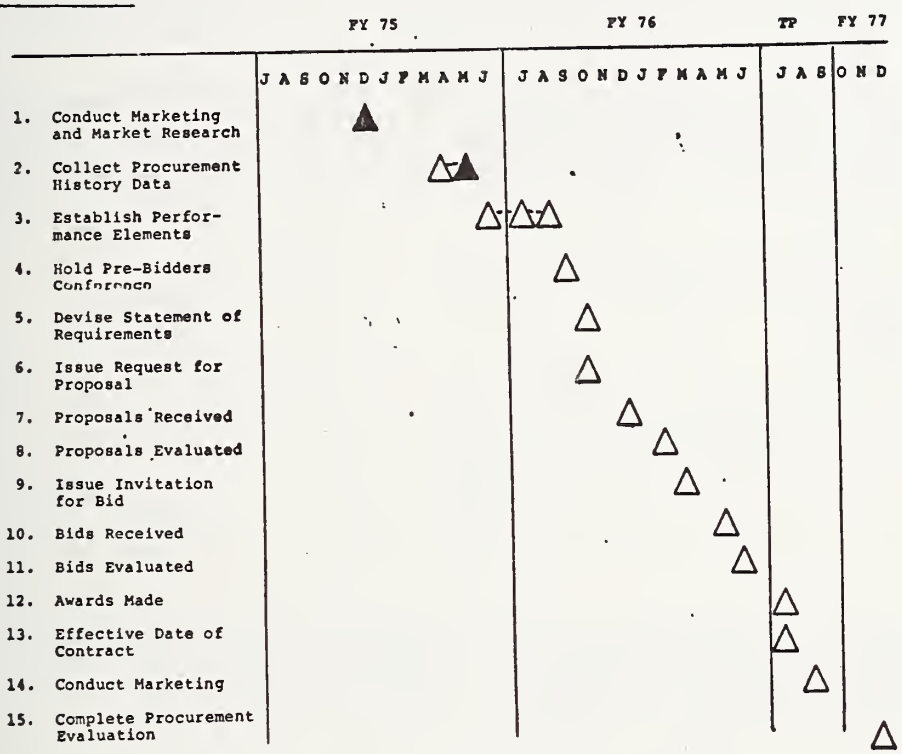
Progress: As of this date, charges totaling $22,700 have been accumulated against this project.

In May, 1975, invoices received from FSS for this and other projects were returned to them unpaid for lack of information. FSS was informed that we would not approve invoices for payment until proper documentation was furnished. FSS has reviewed their records, corrected the invoices and resubmitted them for payment. As of this writing, we have not received the corrected invoices.

71. Cleaning Agent Experiment

Purpose: To test the hypothesis that an item can be procured on a performance/cost effective basis and that improved cleaning agents used by the government will diffuse into the general marketplace more rapidly than would otherwise occur.

Milestones:



Progress: The Materials Evaluation and Development Laboratory at FSS evaluated eight cleaning efficiency test methods submitted by industry. Five methods were chosen for further evaluation, and subsequently reduced to two test methods.

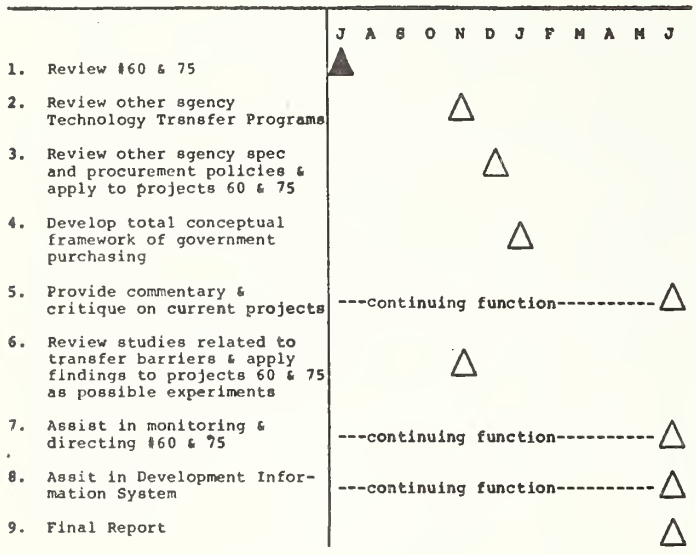
Testing to evaluate these two methods has been completed by the Materials Evaluation and Development Laboratory of FSS and a report of their findings is being prepared. As of this date, the report has not been completed hence the slippage of milestone #3.

Procurement history (annual usage) has been collected.

72. Charles C. Travis - Technical Assistance to the Procurement Policy Area of ETIP

Purpose: To provide coordination, analysis and interim evaluation on the procurement experiments, to provide critique, commentary, and guidance to the procurement policy experiments and to maintain liaison with industry as the experiments proceed.

Milestones:



Progress:

Meeting to discuss interrelationships between NIGP and NASPO projects, the deficiencies in project scope, method of implementation and progress to date.

Meeting on July 29 with representatives from ETIP, NIGP, NASPO, and FSS. The meeting resulted in the identification of initial tasks, the establishment of a task group and the general recognition of the scope and complexities of developing an effective and self supporting system.

Developed a framework for discussion with ETIP staff and further development as necessary. The framework identifies the elements which should be included in projects when the contractor has no directional authority.

Also, various reports have been reviewed in the context of projects #60 and 75.

73. Oscilloscopes

Purpose: To test the effectiveness of a user-manufacturer feedback system in encouraging technological innovation.

Milestones:

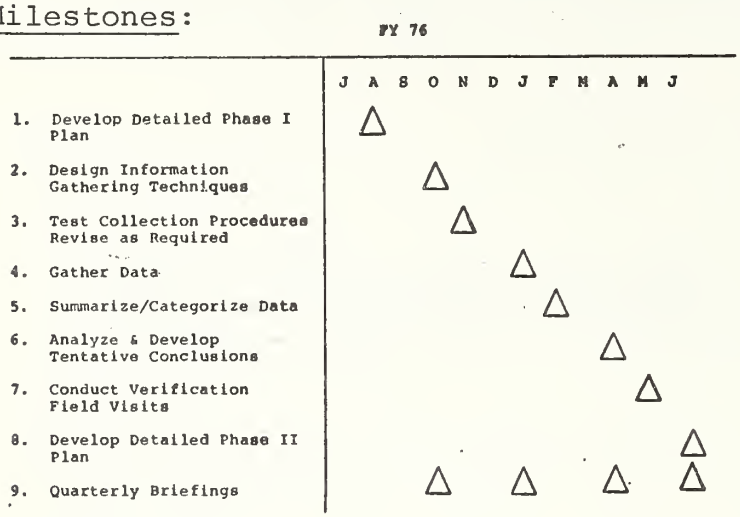
	FY 76
	J A S O N D J F M A M J
1. Decision to incorporate project into #42.	△

Progress: This project is being held and will be reviewed to determine if a feedback system for products on multiple award schedules can be developed under the Umbrella Project (#42).

75. Systematizing Local Procurement as the Preface to Technological Change

Purpose: To test through experiments and analysis, the effects of local purchasing power in stimulating innovation through the application of new procurement policies and practices.

Milestones:



Progress:

Contract signed and effective June 24, 1975.

NIGP staffing up, enlarging quarters and developing administrative and reporting procedures.

NIGP participated in a meeting on July 29 at NBS and contributed to the design of a state and local procurement information system.

RFP for subcontract to NIGP for consultant assistance in system development prepared and reviewed by ETIP. New version ready for advertising after clearance from DOC contracting officer.

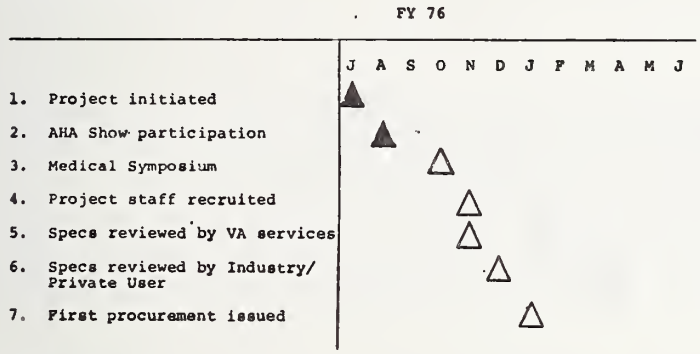
NIGP prepared and mailed letter to its membership explaining ETIP project and soliciting cooperation.

NIGP provided ETIP with booth space at its annual conference and product exposition to be held in Philadelphia from September 27 thru October 1.

80. Systematizing the Design Development and Use of Incentives in the Procurement of Medical Equipment and Supplies

Purpose: To continue to design and develop procurement plans relating to medical equipment and supplies, to provide initial support to the experimental procurement function at VA, to coordinate joint procurements between Federal, State and local purchasing groups and to provide the necessary liaison to industry.

Milestones:



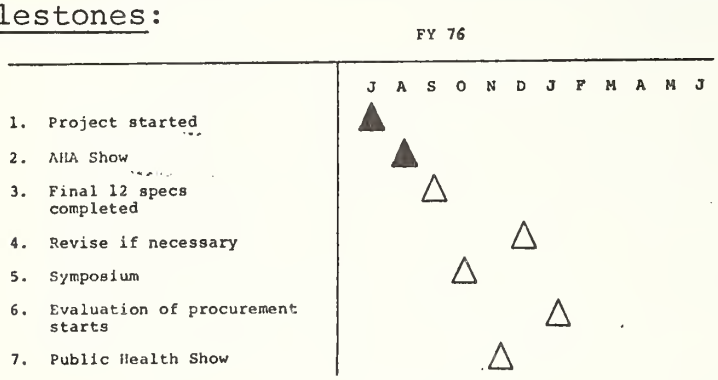
Progress:

- Funds transferred to VA and project initiated in August.
- Recruitment for projected VA staff underway.
- Participation in annual AHA Show to promote program and obtain user and industry input to new concepts in procurement.
- Specifications for 12 products in review and comment phase by VA.
- Procurement Symposium for Medical Equipment and Supplies set for October 14-16, 1975 at NBS.

81. Design for Federal Procurement Experiments for Improved Health Care Delivery

Purpose: To continue to design and develop procurement plans relating to medical equipment and supplies, to provide initial support to the experimental procurement function at VA, to coordinate joint procurements between Federal, State and local purchasing groups and to provide the necessary liaison to industry.

Milestones:



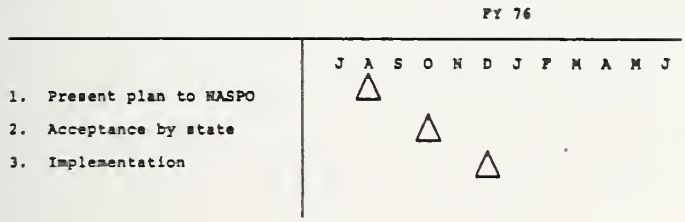
Progress:

- Phase II project underway, July 1, 1975.
- Preparation for and participation in AHA Show.
- Assistance in selecting Symposium Workshop chairpersons, developing invitation list and developing workshop topics.
- Preparation of final specifications for VA service review and implementation.
- Review of additional products for spec development prior to discussions with VA. Include markets, technology, user needs and so on.

82. Office Copier Experiment

Purpose: To test the effectiveness of a state copier procurement managment system in stimulating innovation.

Milestones:



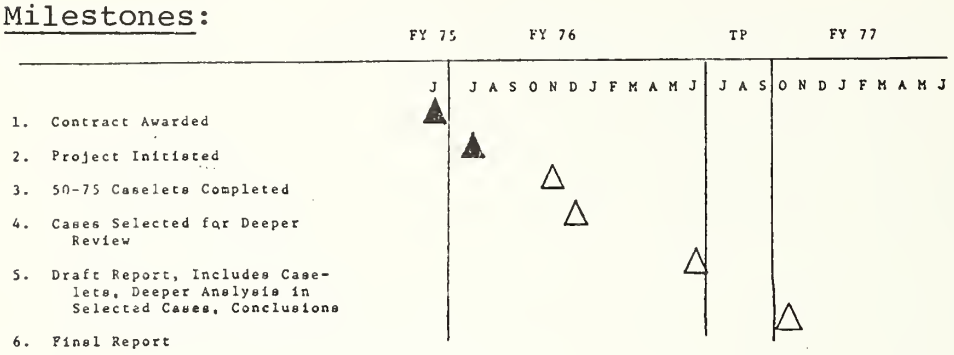
Progress: A preliminary plan was developed by Booz-Allen and presented to FSS managment and the ETIP staff for comment. The Commissioner of FSS eventually concluded that the plan was sound but he did not have the resources - specifically manpower - available to do the project properly. The project plan was then converted from Federal to the State procurement level. The project plan will be sent to NASPO in August for their comments.

REGULATORY AREA

8. Analysis of the Dynamics Underlying Regulatory Changes Having Significant Effect on Innovation

Purpose: To gain a fuller understanding of the forces which have historically been responsible for prompting changes in regulations which have had a significant effect on technological innovation.

Milestones:



Progress: This project is a collection of case studies which will analyze the processes and procedures which were involved in the change (or the proposed change) in regulations which have had (or would have had if adopted) a significant effect on innovation. Particular attention will be paid to where and when the idea for the change occurred, the nature of the process used to make the change, who the parties were who participated in the process and what their respective interests were, the nature of the evidence presented, and so on.

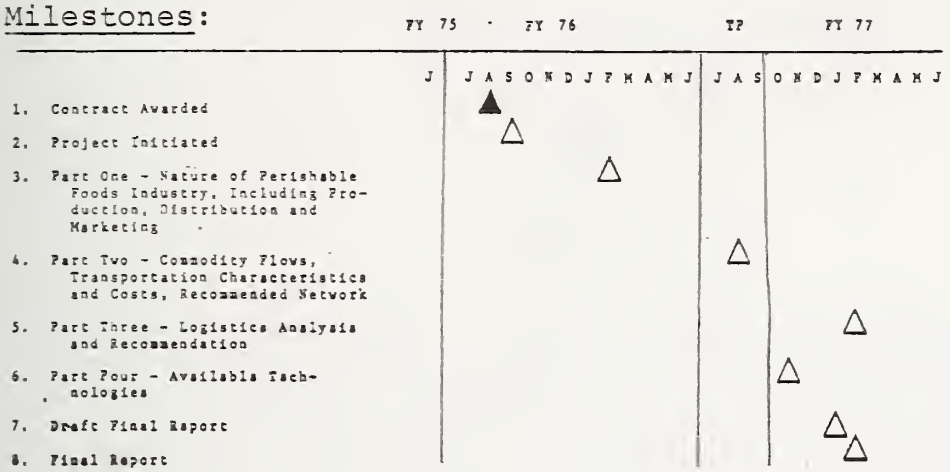
The purpose of the study is to gain insight and documentation with respect to the political forces leading to changes in regulations. This is deemed an important contribution to any effort which would be used, on an on-going basis, to provide the maximum responsiveness of regulation to economic and technological needs.

The firm of Charleswater Associates has contracted with ETIP to conduct the project. The first stage of their effort will be to generate brief outlines of between 50 and 75 cases. At this stage the above questions will be answered with only a sentence or so. The cases selected will represent a variety of types of regulations and, within each type, several different forms of proceedings. From these caselets some preliminary conclusions will be sought. Additionally, they will form the basis for selecting 10-15 cases for deeper analysis.

31. Refrigerated Rail Transport Experiment

Purpose: To develop and implement new regulatory practices and provide increased incentives for investing in refrigeration technology for railroads.

Milestones:



Much of the current assault on economic regulation is based on the untoward and uneconomic results which have stemmed from it rather than from its inherent structure. The thesis of this experiment is that a considerable amount of these troubles has arisen from an inability of the regulatory process to examine with detail and sophistication the cost structure of the industry under regulation, with the result being that the cost and benefits are so dislocated that the entire system becomes highly inefficient. Thus this project is examining a particular cost and logistics structure in an effort to see if that information can successfully be used to structure the regulation which allocates the costs and benefits, so that the industry responds to the market rather than to the artificial constraints of regulation.

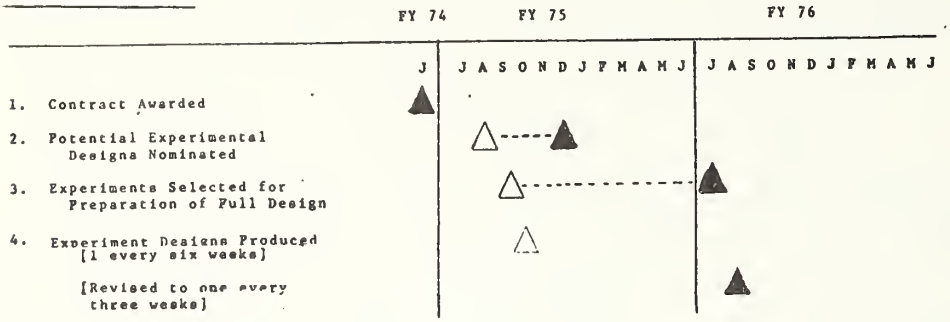
The particular topic of the experiment is transportation of fresh fruits and vegetables from the western growing regions to the markets of the east. It will generate an extensive amount of information about the way they are grown, processed, transported, distributed, and marketed in an effort to determine the various costs and benefits of alternative systems. That information will then be used in the regulatory process in proceedings before the Interstate Commerce Commission.

This project is being run in cooperation with the Federal Railroad Administration of the U. S. Department of Transportation. For several reasons, it has been delayed about one year from the time it was originally anticipated that work would be underway. However, a contract has now been awarded to the firm of Manalytics, Inc. An organizational meeting will be held shortly.

44. Design and Analysis of Regulatory Experiments - Narrow Scope

Purpose: To provide design, analysis and consultation in the preparation of six narrow scope regulatory experiments.

Milestones:



ETIP would like to generate a wide variety of well researched and comprehensively developed projects. However, the amount of staff time available for these efforts is necessarily limited. But even if it were otherwise, there is merit in securing the views of people who are active in the area of regulation but who are not employed by the Government. Thus ETIP let two contracts for the design of six potential experiments. Under these contracts, the contractor is responsible for: developing a conceptual framework from which to work; a list of potential experiments which the contractor feels would be suitable for ETIP to conduct with another agency; and, after discussions with ETIP, six of these nominees will be selected and a full experimental design will be prepared for each. In addition, the contractor will be responsible, on a task order basis, for providing consultation services to ETIP.

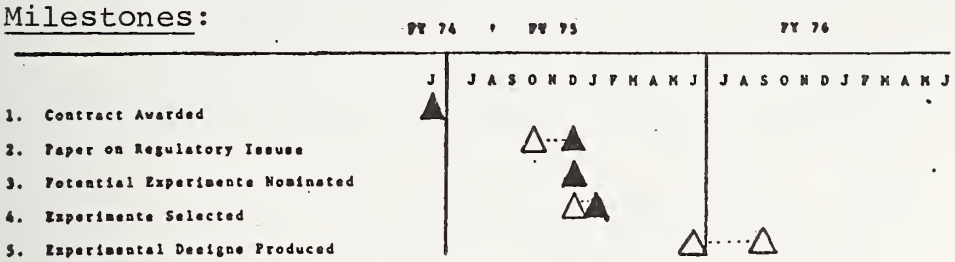
The first of these contracts focuses on regulatory agencies which affect a limited, or narrow segment of our economy, such as transportation or energy supply. The firm of Gellman Research Associates was awarded this contract by ETIP. On the consultation side of the contract, they have prepared a survey paper entitled "Regulation, Competition and Innovation in the Common Carrier Communications Industry." On the experiment design side, forty potential areas were identified and discussed. This list was narrowed to fifteen, and a brief description of each of the fifteen was prepared. From this collection, the following six were selected:

- Peak load pricing in electric utilities
- Guidelines for cost/benefit analysis by regulatory agencies
- Railroad rates which would cover transportation only, with additional charges for ancillary services
- Permit and encourage a differential rate for containers on flat cars and trailers on flat cars if there is a difference in the cost of providing the service
- An experiment with respect to airline service (specific topic to be determined)
- Given the present structure of the telephone industry, ways to ensure a maximum amount of beneficial technological innovation.

45. Design and Analysis of Regulatory Experiments - Broad Scope

Purpose: To provide design, analysis and consultation in the preparation of six broad scope regulatory experiments.

Milestones:



*Delivered during period June-Sept., 1975; 4 of the 6 have been produced.

ETIP would like to generate a wide variety of well researched and comprehensively developed projects. However, the amount of staff time available for these efforts is necessarily limited. But even if it were otherwise, there is merit in securing the views of people who are active in the area of regulation but who are not employed by the Government. Thus ETIP let two contracts for the design of six potential experiments. Under these contracts, the contractor is responsible for: developing a conceptual framework from which to work; a list of potential experiments which the contractor feels would be suitable for ETIP to conduct with another agency; and, after discussions with ETIP, six of these nominees will be selected and a full experimental design will be prepared for each. In addition, the contractor will be responsible, on a task order basis, for providing consultation services to ETIP.

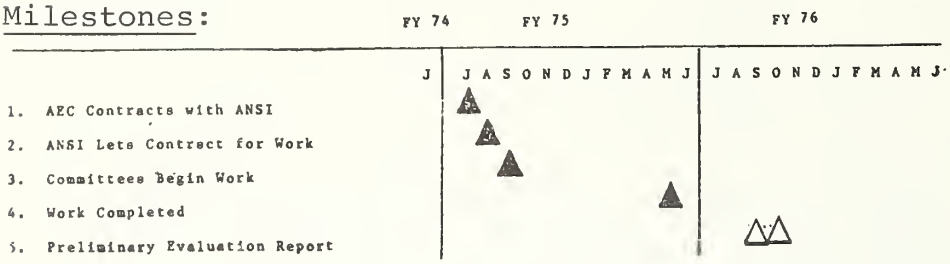
The second of the contracts focuses on agencies which regulate several sectors of our economy. This contract was awarded to the Public Interest Economics Center. PIE-C prepared a paper entitled "Regulatory Change and Innovation" which identified and briefly discussed many of the issues affecting the relationship between regulation and innovation. With that background, a list of 33 potential experiments was prepared, and from that list about ten were selected for a preliminary writeup. That list was narrowed again, and the following experiments are being fully designed by PIE-C:

- Health care delivery (alternative rate setting procedures to promote efficiency and innovation in hospitals)
- Pollution abatement
  - the effect of elasticity of demand on the willingness of a firm to cooperate with a standard and innovate in meeting its responsibilities
  - the potential use of effluent taxes and the effect of tax subsidies on acquiring pollution control equipment
- Hiring practices of the government and their effect on the regulatory environment
- Industry responses to an extension of time to comply with emission standards
- R&D Pooling (an analysis of what factors should be considered in determining whether the aggregation of R&D efforts by several firms would be economically and socially desirable).

47. Accelerating the Establishment of Standards and Their Adoption as Regulatory Guides by the former Atomic Energy Commission

Purpose: To determine whether any or all of four changes in the method of developing nuclear standards is a desirable method for accelerating the establishment of responsible standards which are approved by ANSI and adopted by the Nuclear Regulatory Commission.

Milestones:



For the fulfillment of their duties, many regulatory agencies must develop and promulgate highly technical standards. These standards are inevitably based on the state of technology of the relevant area, and it is these which provide the direct interface between technology and regulation. One way of developing these standards is by means of the traditional manner of establishing consensus, or "voluntary," standards. These are developed outside the agency by a committee of people with a practical familiarity with the subject matter and, once developed, they are tendered to the agency for incorporation into its regulatory scheme.

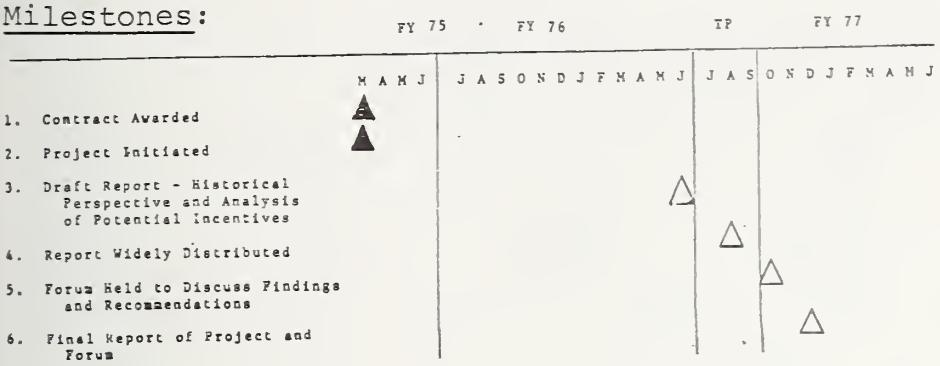
This experiment, run in cooperation with the NRC and the American National Standards Institute, made several changes in the normal way consensus standards are drafted to see if their development can be expedited and the information underlying them increased. It tested the use of a full-time committee chairman instead of the normal case of having someone do the work in his spare time. Another aspect was to provide technical editorial services for the preparation of early draft standards. Another was to provide a committee with technical secretarial help to expedite the translation of committee discussion into draft standards. Finally, it brought committees together for an extended period of time by paying out of pocket costs in an effort to substantially reduce the amount of time consumed by coordinating views via the mail, telephone, and through shorter meeting periods.

The contractor for this project is Battelle Northwest Laboratories. Work was completed on the project in May, and preliminary results look quite promising, in that it appears that the development time for these standards can be reduced from two years to several months. Battelle is currently gathering up the relevant information to be incorporated in their final report which is due in October.

48. An Experiment in the Regulation of Pesticides

Purpose: To provide enlightened information on what alternatives may exist to foster the development of effective pest control systems which conform to national goals and to spark discussion as to what should be done to stimulate innovation with respect to safe and effective pest control systems.

Milestones:



EPA is in the process of implementing a new scheme for the regulation of pesticides. This scheme is expected to increase significantly what is already an extraordinary amount of money and time required to comply with the testing requirements that are necessary for approval by EPA. The fear is that these factors, along with other regulatory problems, will discourage the development of new pesticides and other forms of pest controls. Many of the same problems are encountered in other regulatory settings, especially where a product must be approved by an agency before it may be marketed. The results of this project should thus be widely applicable.

This experiment is examining actions the Federal Government, and in particular EPA, can take to reduce the high costs of complying with the regulations and will determine what might be done to otherwise provide an incentive for the discovery, development, and use of new pest controls. As part of this project, a forum of interested parties will be convened to discuss the findings of the study. The hypothesis of the project is that this detailed examination of incentives, followed by a forum to discuss the implications of the various alternatives examined in the study, is a mechanism which will facilitate the adoption of changes which will provide incentives for innovation in this important field.

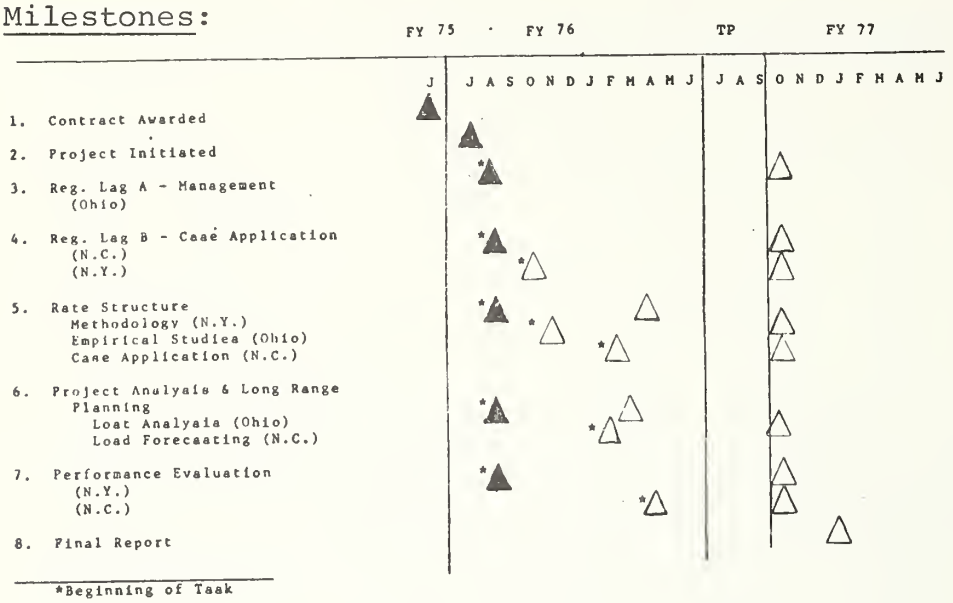
Among the changes being examined are: the certification of non-federal laboratories for product testing; federal testing; increased codification of certification requirements; the use of a revolving fund to shift certification costs from front-end to downstream based on royalties; and the effect of insurance on the marketing and use of pesticides.

Arthur D. Little is conducting the project under contract with EPA. Thus far, work has concentrated on the process by which pesticides are discovered, developed, approved, marketed, and used. This information will then be used to identify areas which might respond to an appropriate incentive.

76. Experiments in Computer Applications for Regulatory Agencies

Purpose: To determine the effect of modern data processing equipment in (a) expediting what is now a time consuming regulatory process and (b) permitting a more sophisticated analysis than is now possible with respect to several aspects of the regulation of electric utilities.

Milestones:



During the process of the regulation of electric utilities by the various state public utilities commissions, vast amounts of information must be gathered, quantified, analyzed, and processed before a hearing on a rate adjustment can be held. Once the hearing is conducted, all the information must be taken into account and a final determination made as to the rates. All this requires a long time, so that by the time the process is complete, the information is frequently up to three years old. In relatively stable time, this staleness is not of dire consequences and may even be beneficial. But in times of high inflation and changing energy requirements, it can cause severe hardships for utilities and, ultimately, the consumers.

This project, run in cooperation with the Federal Power Commission, is addressing many of the pressing issues with respect to the regulation of electric utilities:

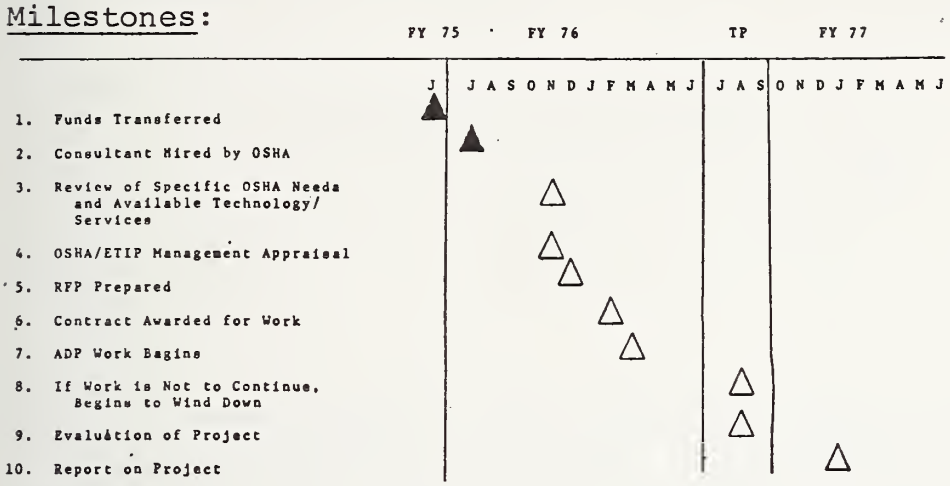
- Regulatory Lag -- caseload management within a Commission
- Regulatory Lag -- analytical procedures used in rate cases
- Rate Structure -- peak load pricing; elasticities of demand; cost of providing service
- Project Analysis and Long Range Planning -- building appropriate capacity to meet future demand
- Performance Evaluation -- testing whether a firm is operating efficiently and spotting problems early.

The firm of Temple, Barker & Sloane is performing the work under this project. The states of Ohio, New York, and North Carolina are cooperating with the project, most of the actual work of it will be performed in conjunction with the commissions of these states.

85. Using Technology to Increase the Information and Decrease the Time for the Regulatory Process

Purpose: To use modern information handling technology to increase the information and decrease the time for developing regulatory standards.

Milestones:



Progress: During the process of setting the standards which concern employee safety and health, a number of factors must be taken into account--technical feasibility, economic effect of different levels of protection, the worker's psychological reaction to a requirement, and the ability to administer the requirement without protracted litigation. In order to do this, information must be developed on each of these areas and its nuance and implication analyzed and understood. Thus it is essential that all available information be incorporated in this process. But even the information now presented in the proceedings leading to the development of a standard can be vast and consequently difficult and time-consuming to master.

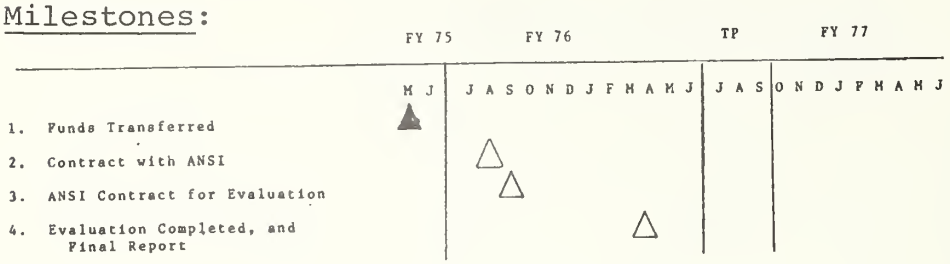
This project, run in cooperation with the Occupational Safety and Health Administration, will use modern information handling technology in an effort to increase the amount of data available for the setting of standards and to expedite the handling of all the information generated.

OSHA has begun work on this project by retaining the services of an information specialist who is matching OSHA's need to the latest available technology; they have also hired a management consultant to survey their standards-setting operations to determine those areas which could benefit the most from better information processing abilities. Once that work is completed, an RFP will be issued to procure the services identified in the survey. OSHA will then experiment with these services to determine whether, and how much, they actually aid in the process of developing standards.

95. Evaluation of ETIP/NRC Standards Development Project

Purpose: To conduct the evaluation of ETIP Project #47 in order to determine whether the changes made to the standards development process are a beneficial way of developing these highly technical standards.

Milestones:



This project, run in cooperation with the Nuclear Regulatory Commission, is the formal evaluation stage of ETIP Project 47, "Accelerating the Establishment of Standards and their Adoption as Regulatory Guides by the [Nuclear Regulatory Commission]." The ultimate questions to be addressed by a contractor hired for the purpose will be:

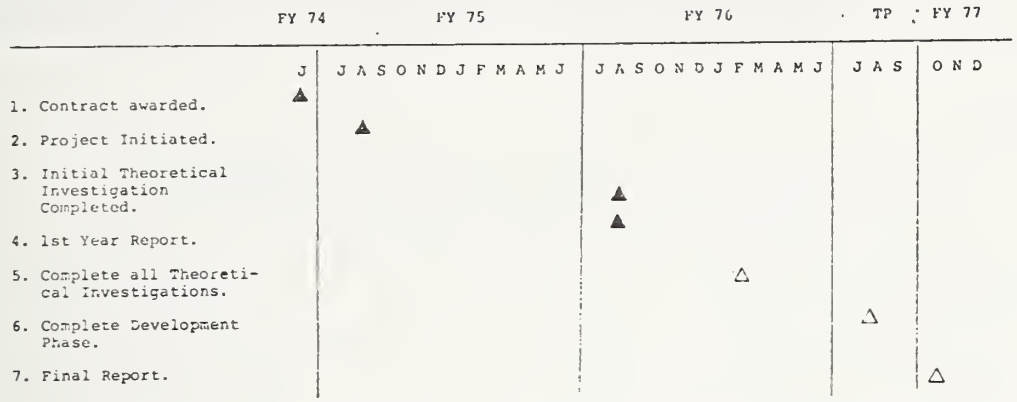
- Have the schedules for the development of the standards (both the overall schedule determined without regard to Project 47, and the schedule determined by the project manager for the project) been met?
- Did any of the changes made during Project 47 significantly reduce the time required to develop a responsible standard; if so, which ones and how did they do so?
- Are the standards of high quality, in that they are readily acceptable by the Commission and in the opinion of the Commission's staff they are comprehensive and as easy to use as is practicable?
- Did the project generate a more effective and efficient use of the working group members?

En route to answering these ultimate questions, the contractor will be expected to make a careful analysis of the effect of the various changes on the process of developing consensus standards. The NRC is currently in the process of contracting for this evaluation.

CIVILIAN R&D AREA

Purpose: To initiate, in response to Congressional mandate, an expanded fire, textile, and apparel flammability research program and to conduct an experiment on federal civilian R&D funding policies within a regulatory context.

Milestones:



Progress: Contract awarded to a consortium headed by Clemson University and including University of Maryland, Polytechnique Institute of New York, Research Triangle Institute, U. S. Department of Agriculture Laboratory at New Orleans, Hooker Chemical and Plastics Co., American Enka, Dow-Corning and United Merchants and Manufacturers. Contractor was selected based on criteria that heavily weighed:

(1) the social and economic rationale presented for the selection of the specific problem to be addressed by the contractor, within a government defined broad problem context (cotton-polyester flammability), and
(2) the proposer's plan to pursue early commercialization of the research results.

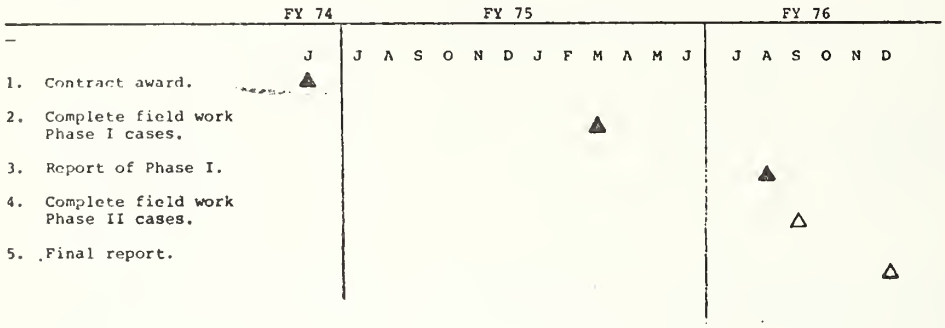
Investigations designed to develop a fundamental understanding of the technical and scientific problems associated specifically with the flame retardants of cotton-polyester blend fabrics have been highly successful. It is now possible to predict with a high degree of certainty, the types of chemical agents which should be effective in rendering cotton and polyester fabrics flame retardant. In addition, the interaction which occurs between fiber systems in a blend have been elucidated. Studies have been completed on blends of untreated fibers and on those where one or both contain specific types of chemical modifications. Therefore, it is now possible to predict the effect of a given flame retardant on the flammability of both the individual fibers and the blend. Consequently, it has been possible to determine the effect of various distributions of the flame retardant chemicals among fibers in several systems. This has major implications for the optimization of flame retardant application technology.

Four specific approaches are now under investigation. They involve radiation grafting intrinsically flame retardant polyester fibers, two reagent aftertreatments and single chemical aftertreatment. Encouraging preliminary results have come from these efforts, but it is premature to forecast likely impact on improved flammability characteristics in the 60 to 70 percent of this country's wearing apparel represented by cotton polyester blends.

11. Analysis of Federal Demonstration Projects

Purpose: To develop cost, benefit, and market/industrial/institutional criteria and guidelines for the use of federally procured demonstration projects as catalysts for technological change.

Milestones:



Progress: The RAND Corporation is analyzing federally-funded demonstration projects in order to understand:

a) under what circumstances is a federally-funded demonstration project an appropriate instrument of government action?

b) how should a demonstration project be organized, funded, managed, and its results disseminated in order to maximize its effectiveness?

The study has been underway since the summer of 1974. During Phase I of the project, a conceptual framework was developed, fifteen case studies of demonstration projects carried out, and a tentative set of hypotheses and guidelines relevant to the two questions above generated. A report on Phase I was submitted to ETIP in mid-August. During Phase II of the study, RAND will undertake further case studies to validate the Phase I hypotheses and guidelines. The Phase II report is due in early 1976.

Examples of the study's tentative findings are:

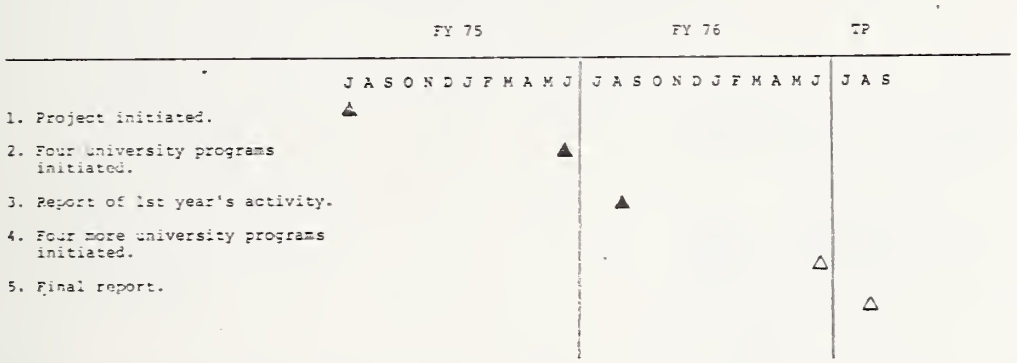
a) demonstration projects are a tool of government intervention with a narrow scope for effective use. Only where uncertainties are in the middle range, or where uncertainty is high in only one particular dimension, will demonstrations materially affect the diffusion process.

b) success of demonstration projects depends much on the demand for the product or process. The question, "Who will use it?" should be at the forefront in the thinking of planners for future demonstration projects.

13. Diffusion of University Research Output

Purpose: To determine if the rate (frequency) of patent applications originated by university researchers can be increased through a systematic "awareness" program involving administration, faculty, and staff.

Milestones:

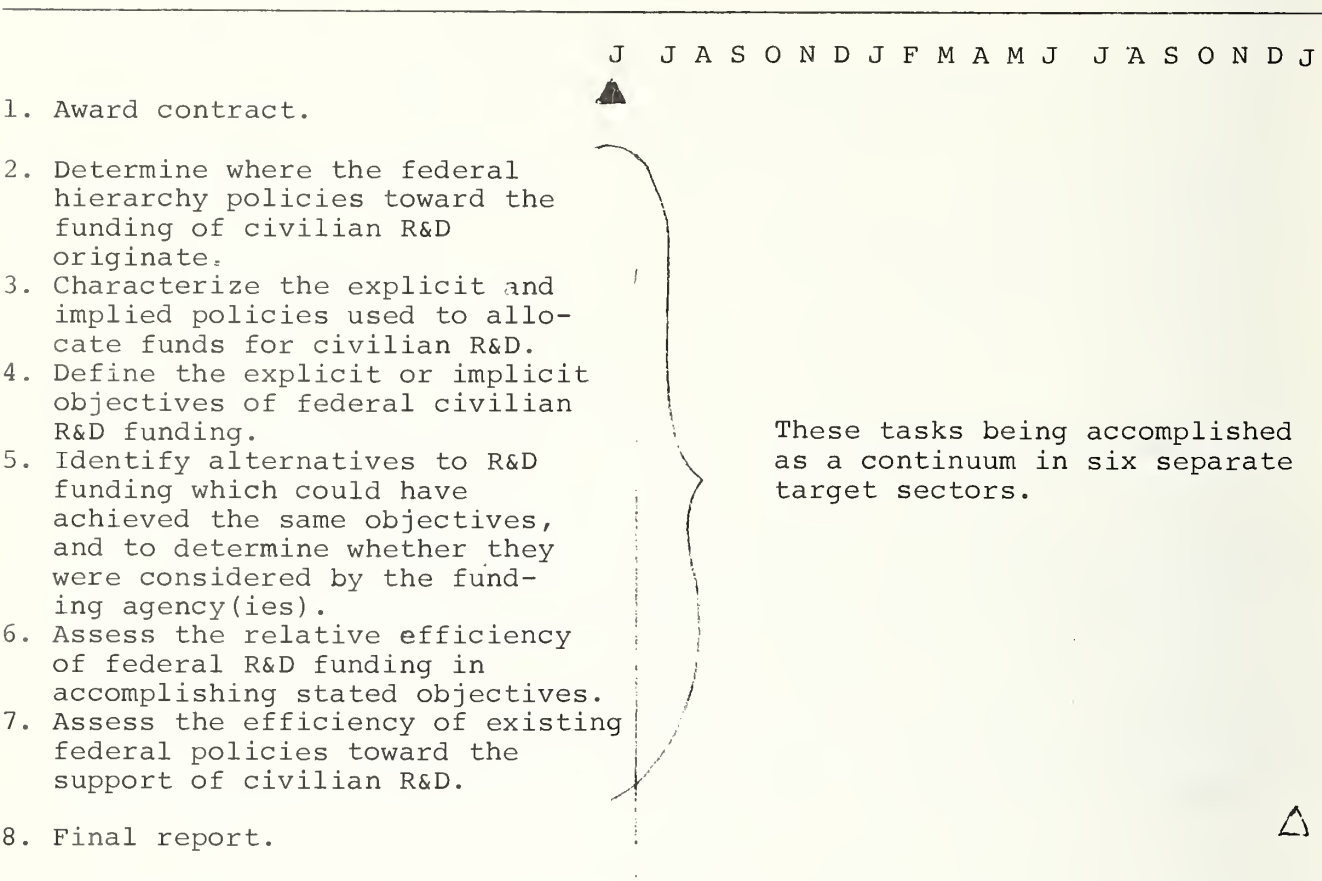


Progress: This project is jointly sponsored by ETIP and NSF. The grantee is the Research Corporation. The University of Georgia was the first institution visited by the Research Corporation team. The number of invention disclosures that have resulted from the first and follow-up visits at Georgia has been at a continuing rate where the monthly number of disclosures is exceeding the number disclosed annually prior to this project activity. Other universities where programs were initiated were the University of Maryland, University of Michigan and Princeton University.

19. Federal Funding of Civilian Research and Development

Purpose: To increase the understanding of how federal R&D funding has in fact functioned as an agent of technological change in the private sector.

Milestones:



Progress: Arthur D. Little, Inc. is engaged in a study intended to increase understanding of how federal R&D funding has functioned as an agent of technological change in the private sector. The study has been underway since the summer of 1974. The first draft of the study's findings will be completed by the end of August. The final project report is due by the end of 1975.

In carrying out the study, ADL has analyzed in depth the policy history of federal R&D programs in six areas:

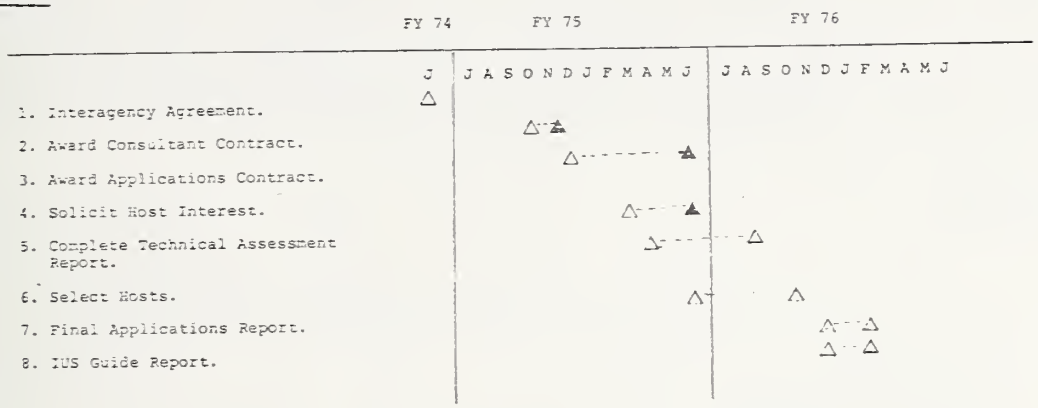
- nuclear power
- local extraction and conversion
- motor vehicle safety
- urban mass transportation
- food processing
- biological pesticides

In addition, ADL is preparing a "cross-cutting" analysis of similarities and differences in the six areas. This analysis will be the basis for an assessment of the efficiency of existing federal policies toward the support of civilian R&D. Until this analysis and assessment is completed, it is not possible to report on the study's findings.

67. (Modular) Integrated Utility System

Purpose: To test the capacity of a federal program office in the role of a "technology broker" to foster the introduction of (M)IUS Technology into large institutional applications.

Milestones:

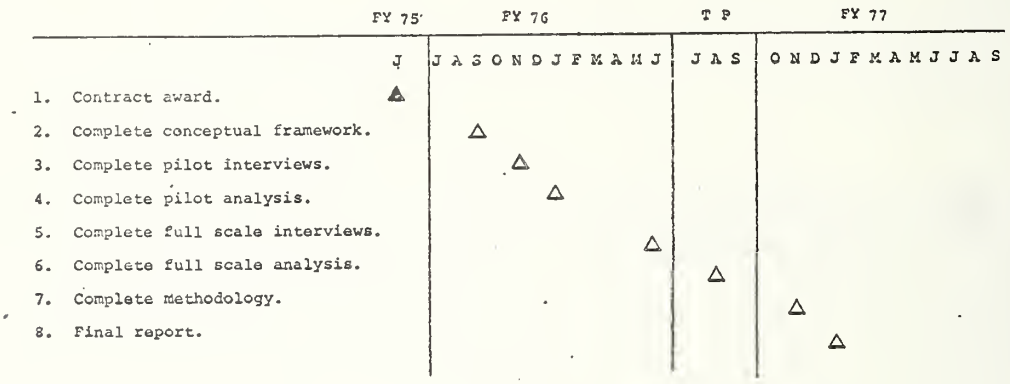


Progress: This project is being conducted in cooperation with the Office of Facilities Engineering and Property Management of the Department of Health, Education and Welfare. The consultant contract was awarded to Paul Geiringer and Associates of New York. The applications contract was awarded to Reynolds, Smith and Hills of Jacksonville. Slippage was encountered because the ethics of the professional engineers will not permit cost-sharing arrangements. This experiment seeks to provide definitive preliminary engineering and cost information to a selected educational institution and a selected medical institution so the institutions can make informed decisions on building IUS installations. More than 40 potential hosts have signified an interest in participating in the project (see also Project 96 - Case Study of Project 67).

87. Management of Federal Civilian Research and Development Programs

Purpose: (1) To describe and analyze the practices of the Federal Government for planning, implementing, managing, and evaluating civilian R&D programs with emphasis on effectiveness of delivery to the user, and (2) to develop, on the basis of the above analysis, models for the conduct of civilian R&D programs with the aim of increasing the likelihood of greater economic and social benefits to society.

Milestones:



Progress: Contract awarded to Stanford Research Institute. Project start date was July 21, 1975.

96. Real Time Case History of ETIP Project #67 (Integrated Utility System)

Purpose: To develop the necessary information on a continuing basis that will permit an objective evaluation of progress on ETIP Project 67 (Integrated Utility System).

Milestones:

	FY 75	FY 76										
	J	J	A	S	O	N	D	J	F	M	A	M	J
1. Award Contract.	▲												
2. Mid-term Briefing.							△						
3. Final Report.													△

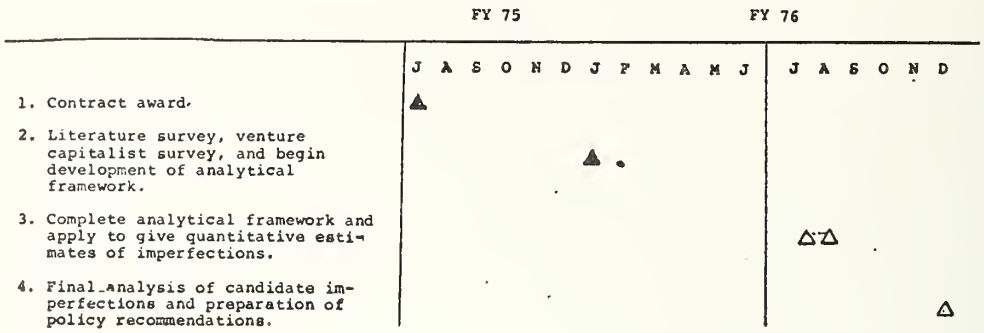
Progress: Purchase order issued to System Planning Corporation to prepare case study. Miss Jean Taylor designated principal investigator. Miss Taylor has interviewed DHEW and ETIP staff for background on Project 67 and has attended working sessions of the project steering group.

SMALL TECHNOLOGY-BASED FIRMS

9. Analysis of Imperfections in Capital Markets

Purpose: To examine the availability of venture capital and its allocation and investigate the allegation that the existing capital is improperly allocated.

Milestones:



Progress: The study is one year old with six months remaining. The work is divided into three tasks, each approximately six months in length. Thus, tasks I and II have been completed with task III just beginning.

Task I consisted of a thorough review of the economic and institutional literature on the venture capital industry and a survey of venture capitalists to develop an understanding of the institutional behavior characterizing this industry. The literature survey confirmed ETIP's rationale for selecting a contractor with strong economics capability--there did not exist a thorough and detailed economic analysis of venture capital markets. Task 1 also began the development of an economic model of the venture capital market.

Task II continued this development as well as completion of the survey and an analysis of the survey's results. The model was applied to obtain, where feasible, quantitative measures of market parameters which was then used to assess the existence and severity of hypothesized imperfections in venture capital markets. The primary sources of data were SEC registration statements, IRS income statistics, financial reports of SBIC and non-SBIC publicly held firms, and survey data from an NSF report prepared by the Diebold Corporation. In addition, a detailed framework for the evaluation of alternative policy responses to identified imperfections was begun.

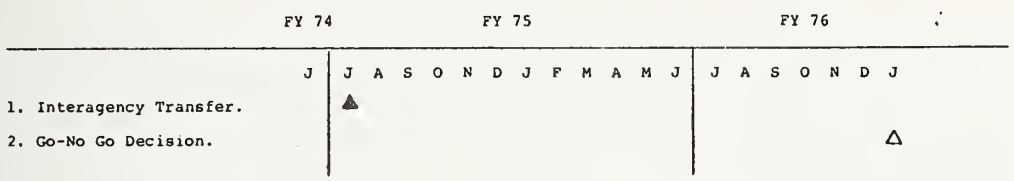
Task III will consist primarily of utilizing the quantitative and qualitative analyses of tasks I and II to provide policy evaluation and recommendations. Tentative imperfections will be thoroughly analyzed and classified into three categories: the structure of capital markets; (2) the behavior or policies followed by suppliers of venture capital; and (3) securities and/or taxation regulations.

The management problems for the remaining portion of the study are two-fold: (1) insure that the analytical work leads into types of policy recommendations that are amenable to experimentation; (2) force the form of the final report to be highly usable by both government officials and members of the venture capital industry.

27. Evaluate Small Firm Business Potential

Purpose: To investigate the possibility of developing a systematic procedure that will permit the evaluation of technological risk to a degree that will permit a loan guarantee and/or direct loan program that would be financially sound.

Milestones:

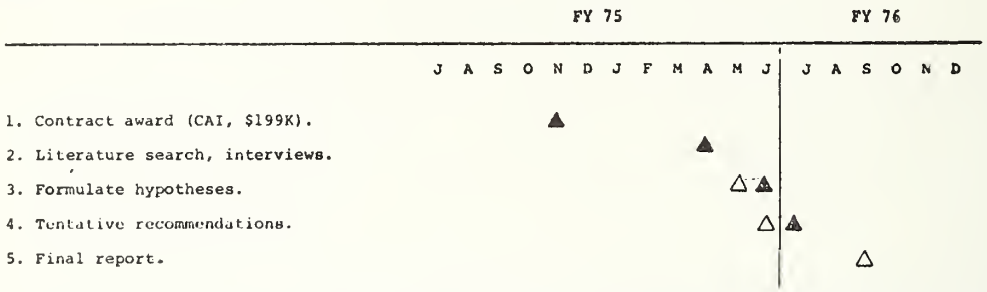


Progress: This project requires the cooperation of the Small Business Administration. Preliminary arrangements were completed with staff members at SBA who have now left the staff. A controversy has developed as to whether any effective set of criteria can be developed to be applied by SBA personnel in rating innovative small firms. This stems from the belief of a number of personnel that small firms are so heterogeneous in nature that no classification scheme is practical. Discussions are continuing within the SBA and with personnel from the Bank of America and Girrard Bank. Information from these discussions will be developed by January to lead to a Go-No Go decision with respect to this project.

28. Assisting Small Firms Required by Regulation to Undergo Technological Change

Purpose: To evaluate alternative policies that the Government might pursue in assisting small firms to comply with impacting government regulations.

Milestones:



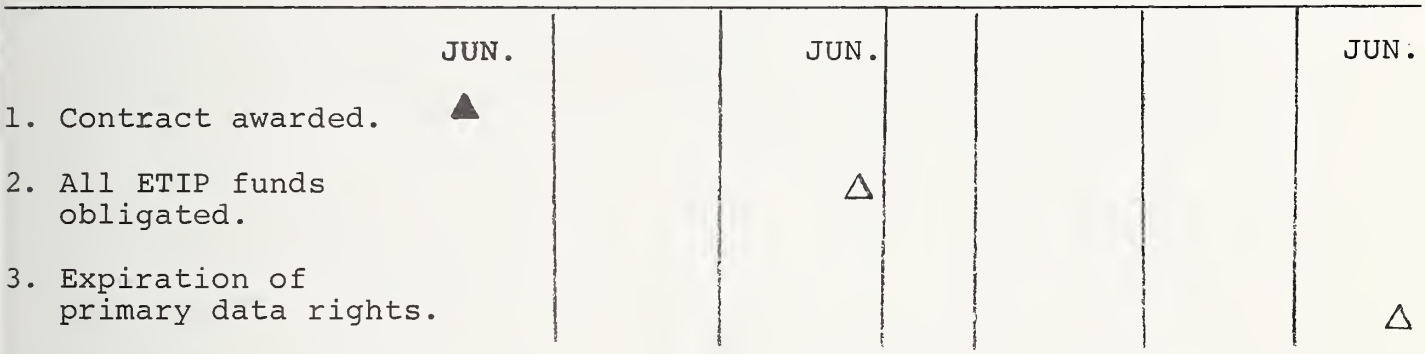
Progress: This study was initiated with SBA's Office of Advocacy, Planning, and Research to determine the impact of federal, state, and local health, safety, and environmental regulations on small firms. The focus is on regulations which would require the firm to undergo technological change. Are small firms affected more seriously than large? How can the Government help them comply? In answering such questions, the contractor interviewed small firms, trade associations, agencies, and other sources. In the process, they found fragmentation of regulation affecting small firms . . . problems raising capital for "non-productive" investments in compliance techniques . . . a tendency to seek "end of pipe" rather than "process" solutions . . . economies of scale in complying with environmental standards . . . lack of small business voice in Washington.

The final report, due in September, will contain recommendations for SBA policy. At SBA there is continued interest in the results of this study. For example, the Office of Advocacy, created last year to represent small firms' interests vis-a-vis the agencies, will use the report to help decide where in the legislative or rule-making process they should enter. SBA will also use the report as a springboard to analyze more thoroughly the impact of regulation on small firms in selected industries. In addition, they are examining its recommendations to see which ones appear feasible as ways of assisting small businesses to comply with regulations.

32. Connecticut Product Development Corporation

Purpose: To evaluate the viability, in the economic, social, political, and technological climate of the U. S., of the ability of a State owned corporation to stimulate economic activity by cost-sharing product development.

Milestones:

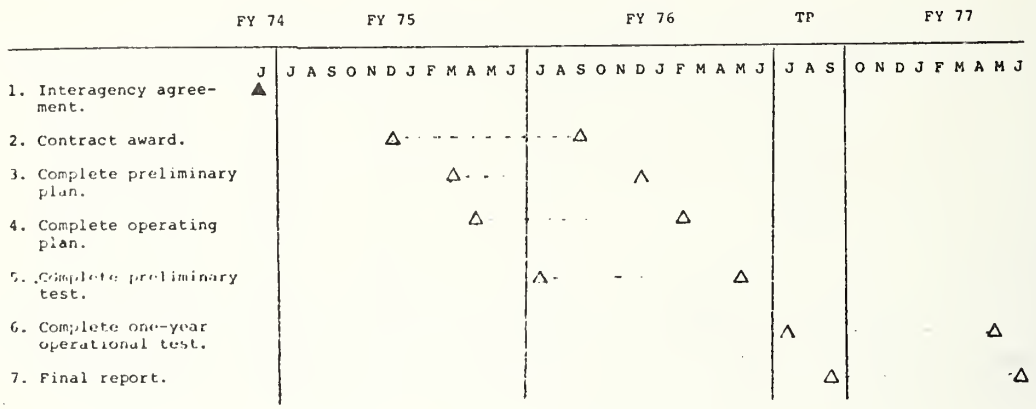


Progress: CPDC has invested in six firms, five with ETIP money and one with State money. The ease with which State bond funds were obtained indicates that further State funds will flow without a great deal of difficulty. EDA may provide additional operating funds for CPDC. The CPDC staff is in the process of mounting a campaign to attract more applications for their funds. This is now appropriate because the CPDC staff has recently been augmented. (See Project 78 evaluation of CPDC experiment)

46. Technical Competency Evaluation

Purpose: To investigate if it is possible to certify in a systematic way that small firms have sufficient competence in certain types of R&D so that reasonable competiton can be obtained if the contracts are set aside for small business.

Milestones:

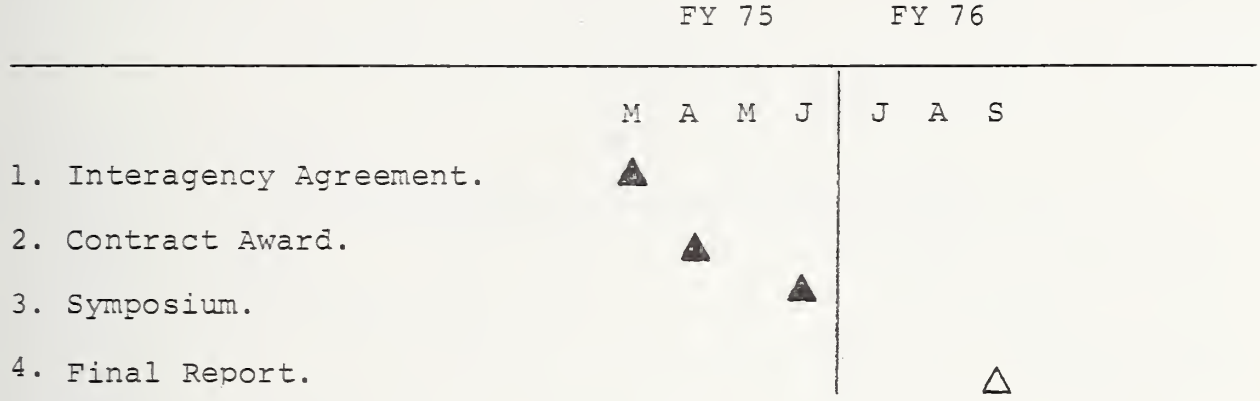


Purpose: This project is being conducted with the cooperation of the Small Business Administration. The process of working out the specific details of the request for proposals proved to be much more time consuming than had been forecast. The contracting procedure is now going forward and 17 proposals have been received. It is anticipated that the revised milestone schedule will be met.

77. Symposium on Assistance to Small Technology Based Firms

Purpose: To promote government-industry dialogue on problems and solutions.

Milestones:



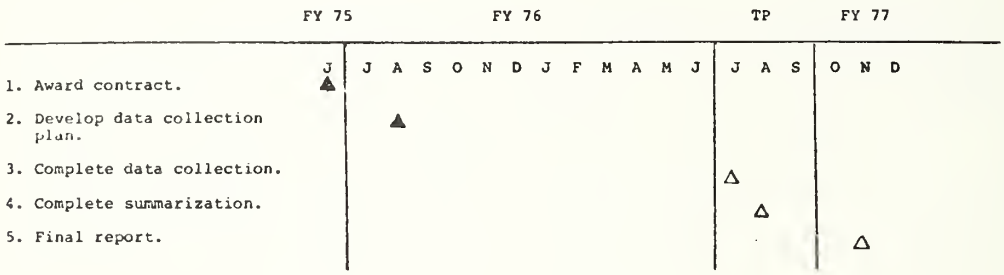
Progress:

Cooperative project with the Small Business Administration. Contract to hold symposium awarded to American Association of Small Research Companies. Symposium workshops were conducted as scheduled on the topics of evaluation and rating of small R&D firms, the advisability of set asides in R&D, government venture capital activities, and methodology for evaluation of energy inventions.

78. Data Collection, Summarization, and Interpretation for ETIP Project with Connecticut Product Development Corporation

Purpose: To provide the basis upon which an evaluation can be made to the viability of this type of State organization in a U. S. environment. The information will also serve as a basis for recommendation relative to the advisability of fostering similar organizations in other States.

Milestones:

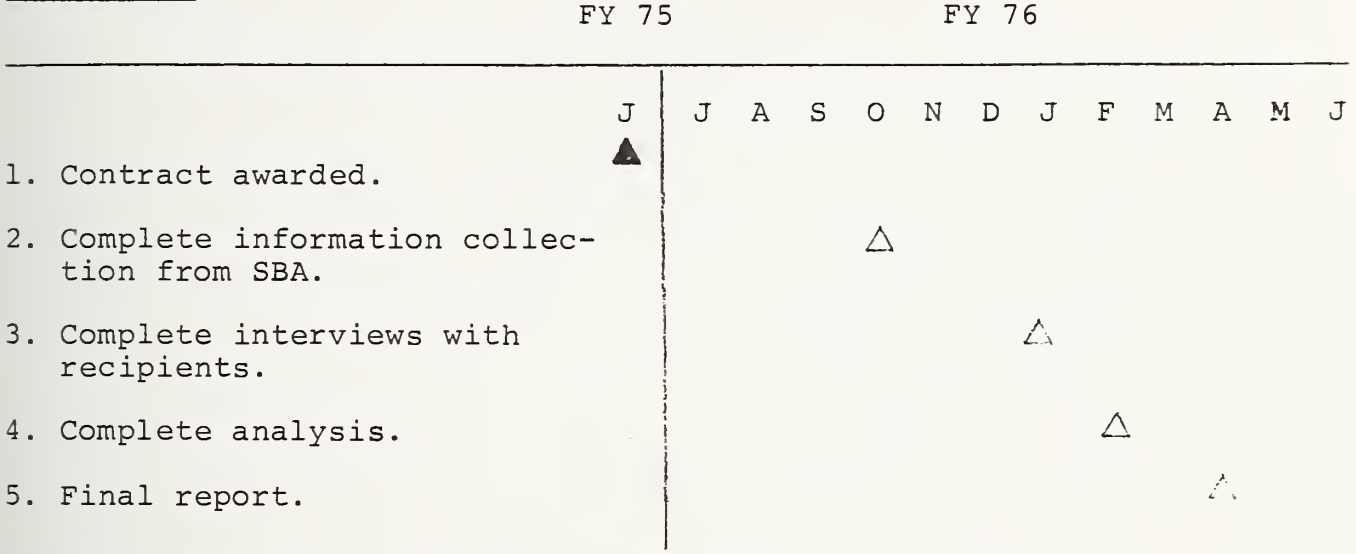


Progress: Contract awarded to Charleswater Associates of Cambridge, Massachusetts. Preliminary review of CPDC files made. Principal Investigator has attended two CPDC client review sessions and will regularly attend CPDC Board meetings. Data collection plan completed and approved for pilot use.

79. Survey of Five-Year Results of Innovation Loan Program

Purpose: To gather information on the financial aspects of the SBA's 1967 and 1968 Innovation Loan Program. This information will provide a basis for policy recommendations or experimental activity to innovation loans.

Milestones:



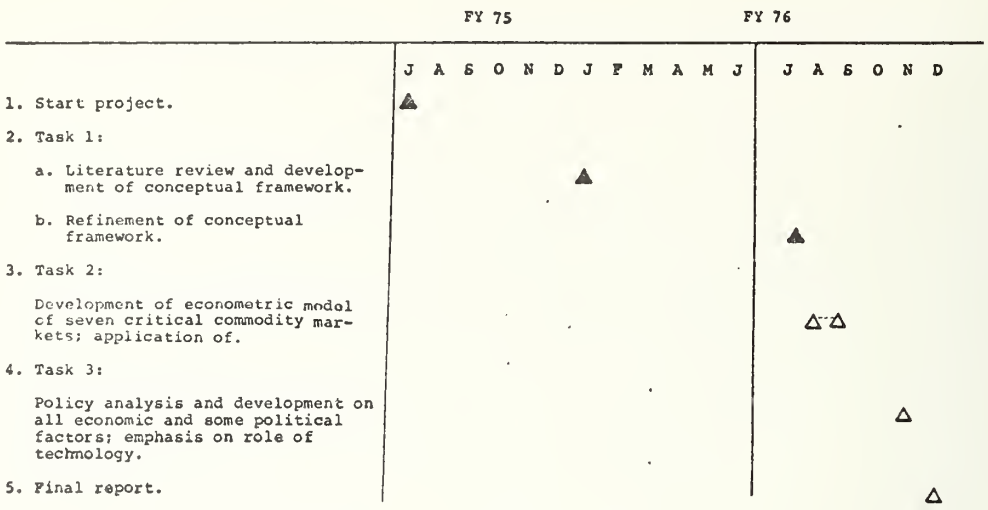
Progress: Contract awarded to Moshman Associates. Meeting held between the contractor, ETIP, and the Small Business Administration. First examination of files conducted at the Boston SBA regional office. SBA has forwarded a letter from headquarters to the Regional Administrator requesting cooperation since Mr. Kleppe has approved SBA participation on the project. Some identification problems encountered because SBA innovation loan files do not have a unique identifier. So far 30 files have been located through the memory of SBA field personnel, with several more regional offices yet to report.

PLANNING & RESEARCH AREA

17. Contingency Planning for Anticipated Technological Crises

Purpose: To develop an understanding of what federal policies are needed under what circumstances to deal with major economic disruptions in markets for critical raw materials.

Milestones:



Progress: The study is one year old with six months remaining. The work is divided into three tasks, each approximately six months in length. Thus, tasks I and II have been completed with task III just beginning.

Task I consisted of a thorough review of the economic and political history of each commodity market: aluminum (bauxite), chromium (chromite), cobalt, copper, manganese, petroleum, and platinum and palladium. These reviews are exhaustive to the point that they are usable in isolation from the subsequent segments of the project. Also, a portion of task I was devoted to the development of an analytical framework for evaluating the susceptability of a commodity market to supply and price distortions. This framework has been continually refined under task II.

Task II consisted of the intensive application of the analytical framework to each commodity market. This includes the estimation of market parameters such as demand and supply elasticities (both for the short and long run). Such econometric estimation along with simulation, forecasting, and sensitivity analysis provides a comprehensive and detailed description of the structure and dynamics of each market.

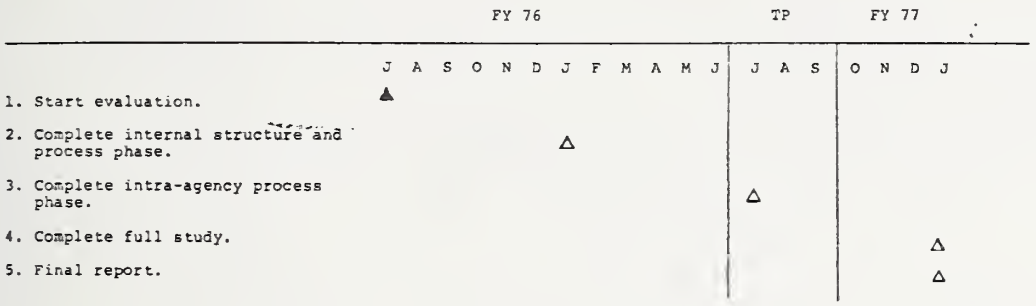
Task III is presently in its initial stages and will utilize the results of the first two tasks to perform policy analysis and to develop policy recommendations. Emphasis will be on the development of a methodology for evaluating the entire range of policy alternatives. This will include the application of the economic models to short-run policy tools such as stockpiling and import restrictions to the long-run measures such as increasing production flexibility through technological substitution.

The management problem in this final task will be to assure a systematic and equal treatment of each policy alternative and to present these results in a format which can readily be used by federal agencies.

94. Evaluation of ETIP Program

Purpose: To have an interim study of the ETIP program that will be useful to the Academy ETIP Evaluation Panel and the Bureau of Standards in making decisions on the future conduct of the program, its funding level, and other relevant program characteristics.

Milestones:



Progress: Project initiated under the direction of the NAS/NRC ETIP Evaluation Panel in July 1975. Principal Investigator is Dr. Gerald Britan of Northwestern University.

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14. Sponsoring Agency Code

15. SUPPLEMENTARY NOTES

16. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)*

This internally prepared report describes the overall accomplishments of the Experimental Technology Incentives Program in carrying out its mission. Progress is compared with the plans that were established in a program plan approved by the Secretary of Commerce in February of 1974. An appendix to the report describes the purpose and shows progress of each of the individual projects that ETIP has launched.

17. KEY WORDS *(six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons)* Civilian R&D Policy, ETIP, Incentives, Innovation, Procurement Policy, Regulatory Policy, Small Business Policy, Technology

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