

US Department of Commerce Advanced Technology Program

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The Advanced Technology Program (ATP), a program within the US Department of Commerce, provides funding on a cost-shared basis to industry for high-risk/high payoff R&D on emerging and enabling technologies. The ATP program concentrates on those technologies that offer significant, broad-based benefits to the nation's economy, but that are unlikely because of the high technical risks, to be developed in a timely fashion without ATP's support. The subjects of ATP research projects are proposed by industry, and awards are made on the basis of announced competitions that consider both the technical and business merits of the proposed work. Since its inception, ATP and industry have partnered to do 400 projects, representing over \$2 billion of total industry/government investment. Excluding 1998 awards, which are yet to be announced, industry/government funding for ATP projects involving agriculture and bioprocessing industries has totaled \$55 M. General information about the ATP, including policy, procedures and projects funded to date, can be found on the ATP website at <http://www.atp.nist.gov>

Details about the ATP portfolio from 1990–1998 include the following:

- \$2.78 billion has been invested and half of the funding has been provided by industry.
- 431 projects with 1,010 participants have been funded.
- 3,585 proposals have been submitted by industry
- There is strong participation by small businesses. Over 50% of the projects are led by small businesses and joint ventures typically include small businesses
- Universities play a significant role. More than 130 different universities have been involved with more than 400 instances of participation

ATP-funded projects are high risk, high payoff that present a substantial technical challenge, offer innovative solutions, are on a sound scientific basis, present a credible commercialization plan, and offer a potential high payoff to the US. Companies typically are interested in research that is less generic, lower risk, shorter term, and offers large benefits to the company. ATP funds research that is more generic, higher risk, longer term, and offers large benefits to the Nation. The basic characteristics of ATP are unique mission focus, partnership with industry, published selection criteria, built-in sunset provisions, extensive rigorous peer review, rigorous project and program impact assessment. Funding is awarded under general competitions and focused programs.

Intellectual property provisions include the following:

Companies incorporated in the US keep the intellectual property rights and they can license. The government reserves the right to royalty-free non-exclusive license for government use. Trade secrets are protected with a non-disclosure agreement, and government rights are rarely invoked. Universities and non-profit research organizations may receive royalties but cannot own title to patentable inventions.

Project selection criteria are based on scientific and technical merit (30%), broad-based benefits to the US economy (20%), commercialization planning (20%), level of commitment and organizational structure (20%), and experience and qualifications (10%). The project must have a business plan (65%) as well as a R&D plan (35%).

There are two ways to participate in ATP. The first is as a single proposer. In this case, projects are no longer than 3 years, total NIST funds are limited to \$2 million, NIST pays only direct costs, for large companies the cost share must be at least 60% of project cost, and no direct funding is provided to universities, governmental labs or non-profit research organizations. The second way to participate in ATP is a joint venture. Projects are limited to 5 years, there is no limit on award amount, NIST cost share is less than 50%, and the joint venture must involve at least two for-profit companies (universities and other non-profits may also participate). Non-profits, but not universities, may administer.

Of the 431 awards made between 1990–1998, they can be broken out by technology area as follows: computing, information and communications—29%; electronics—19%; biotechnology—17%; materials—13%; manufacturing—9%; chemicals and chemical processing—7%; energy and environment—6%.

The benefits of participating in ATP are broad. The program facilitates and accelerates high risk research, stimulates collaboration and formation of strategic alliances, shortens the R&D cycle, accelerates commercialization of the ATP-related technology, attracts additional funding, improves the company's competitive standing, stimulates discovery of new applications for ATP technology, and facilitates changes in corporate philosophy. ATP also offers the R&D Alliance Network (www.atp.nist.gov/alliance). This network promotes formation of ATP joint ventures and provides a sense of the resources required for a successful ATP joint venture. The Collaboration Bulletin Board offers a site where potential proposers can seek partners. The R&D Alliance Forum provides the opportunity for users to exchange ideas and questions.

Examples of agriculture-related R&D funded by ATP include:

AgriDyne: "US Self-Sufficiency in High-Quality Pyrethrin Production"

Agracetis: "Transgenic Cotton Fiber with Polyester Qualities via Biopolymer Genes"

Aquatic Systems/Kent SeaFarms: "Development of New Technologies for Treating and Recycling Wastewater from Aquaculture Facilities"

Mycogen: "Oleaginous Yeast Fermentation as a Production Method for Squalene and other Isoprenoids"

Genecor: "Continuous Biocatalytic Systems for the Production of Chemicals from Renewable Resource"

General Electric: "Synthesis of Monomers"

AgriTope: "Using Biotechnology to Control Fruit Ripening"

CropTech Development: "Enhanced Manufacturing Technologies for Bioactive Proteins and Peptides in Transgenic Tobacco"

Aquatic Systems/Kent SeaFarms: "Superfingerlings: Animal Husbandry Techniques for Use in Aquaculture"

AviGenics: "Development of Hen Oviducts as Bioreactors via Promoter-less Minigene Insertion"

Maxygen: "Whole Genome Shuffling: Rapid Improvement of Industrial Micro-organisms"

Henkel/GE: "Phage Display-Based Platform Technology for Engineering Selective Catalysts"

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