State of Alaska
FY2002 Governor's Operating Budget

Department of Community & Economic Development
Alaska Science and Technology Foundation
Component

Component: Alaska Science and Technology Foundation

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Component Mission

The mission of ASTF is to support the development and application of science and technology.

Component Services Provided

The Alaska Science & Technology Foundation (ASTF) was formed by the Governor and the Alaska State Legislature in 1988. By statute, ASTF is responsible for the development, funding, and monitoring of grant programs for basic and applied research and its commercialization. All ASTF projects must include innovative science or technology, clear research and business plans to show technical and economic feasibility, appropriate match and risk sharing, and expected significant benefit to the state. Funded projects substantially contribute to the economic development of the State's scientific and engineering capabilities.

Component Goals and Strategies

ASTF's first goal is to realize the economic and non-economic benefits of the application of innovative science and technology projects. A second goal is to build a more entrepreneurial Alaska economy by helping enhance a business environment where Alaska has the confidence, know-how, technology, and risk capital to grow an economy of sustainable wealth.

To realize these goals ASTF has the two broad strategies. The first is to co-invest in group projects which bring together scientists, engineers, business people, and regulators when applicable, in an industry group to tackle an opportunity or individual projects involving an entrepreneur and the end user of the science or technology. Projects aim to increase Alaska's technology economy or seek to prove up the science or technology to make existing sectors of the state's economic base (seafood, mining, energy, forest products, etc.) more competitive.

Beyond particular projects, the second broad strategy is to partner with other market-based organizations to build up the entrepreneurial infrastructure necessary to support technology-based economic development. So ASTF aims to help establish and institutionalize ongoing capability so Alaska entrepreneurs have access to the risk capital (Alaska Growth Capital BIDCO, Alaska InvestNet), information workers (Information Technology Careers Consortium, High Tech Business Council), and applied technology (University of Alaska, Alaska Manufacturing Association, and private sector firms) so Alaska's economy builds a more sustainable economic base.

How projects are structured and funded often determines whether they succeed. ASTF funds early stage, longer-term projects that are generally more applied than basic research at universities but not mature enough yet to be fully supported by the private sector. ASTF seeks to apply market-based principles to the funding and management of these early stage commercial projects. So all ASTF activities must have some common characteristics of being based on potential sustainable market economics, pulling together competent teams to both develop and commercialize the science or technology, achieving clear benchmarks to insure Alaska benefit, involving the end user of the science or technology, and showing cost sharing demonstrating appropriate sharing of risk and reward.

Key FY02 Goals

- Work with private sector to establish venture capital offices in state. (No active VC currently in state and while no ASTF funding anticipated in this area, this remain an important capital gap for technology startups and larger debt-equity deals not being financed now or having to leave the state for financing.)

- Ensure that key industry led group projects (Alaska Manufacturing Association, Information Technology Career Consortium, Alaska InvestNet, etc.) ramp up to meet defined market needs.

- Continue to improve performance for ASTF-funded projects as measured by performance measures and project benchmarks.

- Work with University of Alaska and Alaska engineering community to establish improved capability for cold regions engineering at UAF and UAA. ASTF will potentially co-fund $500 K in qualified projects to meet the federal EPSCOR match from the National Science Foundation to increase quality and lower the cost of arctic construction.

- Work with statewide business groups on enlarging discussion of steps to grow state's New Economy and the state's existing economic base.

Key Component Issues for FY2001 – 2002

Fewer Resources

The $101 million principal of ASTF's endowment is co-invested with the Permanent Fund and generates earnings annually appropriated by the legislature for both ASTF and the non-ASTF purposes. The cumulative effects of annual operating budget appropriations of ASTF earnings (University of Alaska $2.6 M, Alaska Aerospace Development Corporation $558 K) and ASTF's past support of the state's share of large capital projects (Kodiak Launch Complex $10 M, UAF Low Rank Coal Water Fuel $4.25 M) have been to reduce ASTF's annual grant budget from approximately $8-9 M to less than $5 M starting in FY02. With a lower amount of principal to generate earnings and fewer capital gains expected in a flatter stock market than seen in recent years, the full impact of the shortfall is only borne by the ASTF's ability to co-finance new projects. At a time when Alaska's economy is growing more slowly than the national economy and our faster growing technology sector is still relatively small compared to other states, this lessened ability of ASTF to provide seed capital and finance group projects with industry merits concern.

Staff Availibility:
Time availability of staff to respond to proposers and groups who want to work with ASTF is at a premium. ASTF's 1995 five year commitment to a flat operating budget remains in place with the result that the ratio of operating budget to project budget has declined. To fulfill our mission, ASTF will continue both to receive significantly more than budgeted time from staff to stay up with workload and to seek to build increased capability in private sector to finance and assist early stage technology-based firms.

Major Component Accomplishments for FY2000

Accomplishments are tracked and managed by technical and commercial benchmarks identified at the time of project funding as well as surveyed annually to aggregate legislated performance benchmarks.

Individual and Group projects:

Improve the competitiveness of the Alaska minerals industry:
- Demonstrated garnet can be a valuable placer mining byproduct
- Water quality - first year of Total Dissolved Solid (TDS) project completed with biological marker species identified and salmon work underway. Project being done in conjunction with state agencies and the Alaska Producers Council so that more science defensible standards can be developed for key water quality permitting issue.
- Launched Ester Dome project with broad stakeholder involvement to characterize the hydrology of Ester and other Interior dome structures.

Improve the competitiveness of the Alaska seafood industry:
- Demonstrated two technologies to improve salmon quality: DEC accepted results of ozonated water wash process (Salmon Forum item) and sodium chlorite demonstrated for use in refrigerated sea water.
- Biotech Paralytic Shellfish Poisoning (PSP) test kit demonstrated at Palmer DEC lab and field kit test done.
- Cordova Salmon quality project completed by fishers, processors, Surefish, and Alaska Manufacturing Association

Enhance the competitiveness of the Alaska forest products industry:

- Through ASTF support of the Alaska Manufacturing Association (AKMA), seven mills now have approximately 70-90 million board feet a year dimensional lumber graded by the Western Wood Products Association representative in state. For the first time, this amount now approximately equals state imports.
- Funding has been secured to establish a Ketchikan-based program to prove up the superior design properties of Alaska spruce, cedar, and hemlock in order to better compete with Canadian products.
- Yellow cedar grading has led to more local sales in Southeast.

Increase the use of technology in education to expand the state's science and engineering capabilities:

- With connection of Hyder school, the Internet K-12 program has been completed. 53 districts matched $4,834,225 of ASTF funds with $11,257,729 and countless Netday volunteers. In Anchorage and other districts, $10 K per school grant for wiring and routers combined with volunteer Saturday efforts of volunteers averaging $10 K expenses to wire schools where original cost estimates of $80K/school if contracted out.
- An estimated 3000 K-12 students statewide participated in ASTF-funded classroom projects in math, science, or technology.
- All teacher science projects are accessible on the ASTF web site at www.astf.org
- Internet science museum program completed with broad band connectivity for interactive programs at Challenger Center Kenai, Pratt Museum Homer, Seward SeaLife Center, and Alaska Native Heritage Center.

Other Projects:

- Petro Star won a $1.6 M competitive grant to scale up the chemical process ASTF and Petro Star both invested in three years ago. The next stage is a small Valdez pilot plant that will prove the economics of a new patented process that will allow smaller Alaska-size refineries to desulfurize diesel fuel to meet announced federal standards.
- An ASTF project established the state's first genotyping lab in Anchorage for the earlier detection and treatment of Alaskans with Hepatitis C who are likely not to know it. The project brings together UAA, the Alaska Native Medical Center, and representatives of Providence Hospital and Alaska Regional Hospital.

Building a More Entrepreneurial Economy

Enhance infrastructure for technology and business development
Risk Capital:

- Alaska Growth Capital (AGC) BIDCO capitalization has been increased to $7.9 million to do pre-bankable deals. In 1999 investments totaled $2.6 M. Key projects include initial financing of Wrangell Seafood plant, Adak Seafood, and smaller technology companies. With ASTF funds AGC financed new product line for Omega Sea plant in Sitka. AGC reports it has made loans to 16 organizations who have created or retained 188 jobs.
- Alaska InvestNet introduces entrepreneurs to investors. Equity placements have occurred in businesses generating 77 jobs and $12 million in revenues. Alaska InvestNet held five venture breakfasts and nine forums in Fairbanks, Juneau, and Anchorage on business evaluation, SEC regulations regarding raising private equity, and business planning for startup ventures.
- ASTF-supported Alaska Technology Transfer Assistance has helped Alaskan entrepreneurs win $4 million of federal Small Business Innovation Research seed grants, an all time high.

Technology Workers:

- ASTF and UA convened Information Technology employers and educators and agreed on technical and soft skills necessary for 15 different IT occupations in demand in the state. As a result, ASTF funded the High Tech Business Council to launch the startup of the IT Careers Consortium, employers are matching $678 K ASTF funds for program to educate and hire new IT workers, and Anchorage Muni and Mat-Su gained $2.3 M federal grant for training IT workers based on skill and job shortages documented by the group project.

Economy:

- Alaska Science and Technology Innovation Index released (www.astf.org) which benchmarks Alaska's performance against the nation and other states.
- Alaska Long Term Economic Strategy published and reviewed with major business groups.
- Updated Guide to Financing and Technical Assistance put up on many web sites so any business person looking for technical or financial assistance can be pointed to applicable state and federal programs after answering key

questions on the stage and needs of their business. (This is the web-based answer to the recommendation of the 1996 Senate Small Business Task Force to better communicate programs to assist small firms.)

Administration:

Maintain administrative service goals:
- Met internal benchmarks for timely response for preproposals, proposals, and grant agreements.
- Updated documentation of repayment obligations and status for all ASTF projects to date.

Statutory and Regulatory Authority

AS37.17.010-17.040
AS37.17.200
AS37.17.440
AS10.10.010
Executive Order No. 90

Key Performance Measures for FY2002

Measure: The number of new jobs from technology projects.
(Developed jointly with Legislature in FY2001.)

Current Status:
In September 2000, ASTF surveyed 99 technology project grantees and received responses from 88 grantees. The surveys were sent to grantees that had completed their grant work within the last five years as well as active grantees that are farther along with their project or product development.

245 full time equivalent jobs were reported by 46 out of 88 technology project grantees.

Benchmark:
Suggested benchmarks are an average of five jobs per grantee for those grantees reporting jobs and at least 50% of technology project grantees reporting jobs. This ratio reflects that grantees have both technical and business hurdles to achieve. ASTF co-invests in early stage business concepts prior to the concept becoming 'bankable'.

Background and Strategies:
ASTF co-invests in new and existing firms that use science or technological innovation to grow their business and achieve Alaska economic benefit. To achieve new job/revenue creation, ASTF co-invests in firms that have strong business plans, management capability, and plans for post-ASTF grant funding if required.

Measure: The new revenue from technology projects.
(Developed jointly with Legislature in FY2001.)

Current Status:
$20.2 million in new revenues were reported by 45 out of 88 technology project grantees.

Benchmark:
Suggested benchmarks are an average of $250,000 per grantee for those grantees reporting revenues and at least 40% of the technology project grantees reporting jobs. This percentage (40%) is less than the suggested 50% percentage of grantees reporting jobs because developments jobs are required prior to the onset of sales.

Background and Strategies:
ASTF co-invests in new and existing firms that use science or technological innovation to grow their business and achieve Alaska economic benefit. To achieve new job/revenue creation, ASTF co-invests in firms that have strong business plans, management capability, and plans for post-ASTF grant funding if required.

Measure: The percentage of technology project grantees in business because of ASTF grants
(Developed jointly with Legislature in FY2001.)

Current Status:
53% (47 out of 88) reported being in business because of their ASTF grant

Benchmark:
50% is suggested.

Background and Strategies:
ASTF co-invests in new business concepts in a portfolio of both new and existing firms. Most Alaskan firms cannot afford R&D projects or risk. New firms offer exciting growth possibilities. Existing firms seeking to add a new business line offer business experience and infrastructure, managerial and financial depth, and support services.

Measure: The increase in student achievement in math and science as a result of ASTF teacher grants
(Revised from Legislature's FY2001 version.)

Current Status:
ASTF also surveyed 50 FY99 teacher grantees and received responses from 34, a 68% response rate. About 80 students participated in each teacher grant.

37% greatly increased, 49% increased, 13% no change, 1% decreased, 0% greatly decreased

Benchmark:
At least 80% increased or greatly increased. Benchmark was revised only to separately measure increase in both student achievement and student interest in math and science

Background and Strategies:
ASTF develops Alaska's capacity for science and engineering by funding competitive science, math and technology classroom projects for Alaska K-12 students. These projects have been highly successful in developing students' interest and achievement in math, science and technology. In addition to funding approximately 50 new teacher grants per year, in FY 01 ASTF will begin targeting critically understaffed career fields through specialized teacher grant offerings in addition to the main Direct Grants to Teachers program.

Measure: The increase in student interest in math and science as a result of ASTF teacher grants
(Revised from Legislature's FY2001 version.)

Current Status:
42% greatly increased, 46% increased, 12% no change, 1% decreased, and 0% greatly decreased

Benchmark:
At least 80% increased or greatly increased.

Background and Strategies:
ASTF develops Alaska's capacity for science and engineering by funding competitive science, math and technology classroom projects for Alaska K-12 students. These projects have been highly successful in developing students' interest and achievement in math, science and technology. In addition to funding approximately 50 new teacher grants per year, in FY 01 ASTF will begin targeting critically understaffed career fields through specialized teacher grant offerings in addition to the main Direct Grants to Teachers program.

Status of FY2001 Performance Measures

	Achieved	*On track*	*Too soon to tell*	*Not likely to achieve*	*Needs modification*
• Increase the three-year average of new jobs established by ASTF funded technology projects to 6 jobs/project by 2001.			X		

	Achieved	*On track*	*Too soon to tell*	*Not likely to achieve*	*Needs modification*
• Increase the three-year average technology project revenue to $150,000/project by 2001.		X			
• Increase the three-year average % of technology project grantees in business due to ASTF grant to 50% by 2001.	X				
• Increase the three-year average % of technology project grantees who report new/improved products/processes/services to 90% or greater by 2001.			X		
• Increase the three-year average % of technology and knowledge projects which increase basic scientific and technology knowledge to 72% by 2001.			X		
• Increase the three-year average % of knowledge projects which develop new processes or services, or reduced costs to 64% by 2001.			X		
• The number of new jobs from technology projects.	X				
• The new revenue from technology projects.	X				
• The percentage of technology project grantees in business because of ASTF grants.	X				
• The increase in student achievement and interest in math and science as a result of ASTF teacher grants.	X				

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Component Financial Summary

All dollars in thousands

	FY2000 Actuals	FY2001 Authorized	FY2002 Governor
Non-Formula Program:			
Component Expenditures:			
71000 Personal Services	652.1	604.8	653.9
72000 Travel	37.5	84.0	84.0
73000 Contractual	486.6	582.0	523.5
74000 Supplies	12.5	16.5	16.5
75000 Equipment	46.3	0.0	0.0
76000 Land/Buildings	0.0	0.0	0.0
77000 Grants, Claims	7,242.0	7,714.2	7,714.2
78000 Miscellaneous	0.0	0.0	0.0
Expenditure Totals	**8,477.0**	**9,001.5**	**8,992.1**
Funding Sources:			
1025 Science & Technology Endowment Income	8,477.0	9,001.5	8,992.1
Funding Totals	**8,477.0**	**9,001.5**	**8,992.1**

Estimated Revenue Collections

Description	Master Revenue Account	FY2000 Actuals	FY2001 Authorized	FY2001 Cash Estimate	FY2002 Governor	FY2003 Forecast
Unrestricted Revenues						
None.		0.0	0.0	0.0	0.0	0.0
Unrestricted Total		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Restricted Revenues						
Science/Technology Endowment Income	51375	8,477.0	9,001.5	9,001.5	8,992.1	8,992.1
Restricted Total		**8,477.0**	**9,001.5**	**9,001.5**	**8,992.1**	**8,992.1**
Total Estimated Revenues		**8,477.0**	**9,001.5**	**9,001.5**	**8,992.1**	**8,992.1**

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Proposed Changes in Levels of Service for FY2002

None.

Summary of Component Budget Changes

From FY2001 Authorized to FY2002 Governor

All dollars in thousands

	General Funds	Federal Funds	Other Funds	Total Funds
FY2001 Authorized	**0.0**	**0.0**	**9,001.5**	**9,001.5**
Adjustments which get you to start of year:				
-Update Executive Administration and Support Cost Allocation Plan	0.0	0.0	-13.5	-13.5
Adjustments which will continue current level of service:				
-Year 2 Labor Costs - Net Change from Fy 2001	0.0	0.0	4.1	4.1
FY2002 Governor	**0.0**	**0.0**	**8,992.1**	**8,992.1**

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Personal Services Information

Authorized Positions			Personal Services Costs	
	FY2001 Authorized	FY2002 Governor		
Full-time	6	6	Annual Salaries	516,878
Part-time	1	1	COLA	11,963
Nonpermanent	0	0	Premium Pay	4,800
			Annual Benefits	140,407
			Less 2.99% Vacancy Factor	(20,148)
			Lump Sum Premium Pay	0
Totals	**7**	**7**	**Total Personal Services**	**653,900**

Position Classification Summary

Job Class Title	Anchorage	Fairbanks	Juneau	Others	Total
Admin Assistant	1	0	0	0	1
Executive Director, ASTF	1	0	0	0	1
Grants Administrator	1	0	0	0	1
Group Projects Administrator	1	0	0	0	1
Office Manager	1	0	0	0	1
Outreach Administrator	0	1	0	0	1
Technology Administrator, ASTF	1	0	0	0	1
Totals	**6**	**1**	**0**	**0**	**7**