

T50T01
TEDCO – Maryland Technology Development Corporation

Operating Budget Data

(\$ in Thousands)

	<u>FY 14</u> <u>Actual</u>	<u>FY 15</u> <u>Working</u>	<u>FY 16</u> <u>Allowance</u>	<u>FY 15-16</u> <u>Change</u>	<u>% Change</u> <u>Prior Year</u>
General Fund	\$18,388	\$20,073	\$18,923	-\$1,150	-5.7%
Deficiencies and Reductions	0	-1,381	-407	974	
Adjusted General Fund	\$18,388	\$18,692	\$18,516	-\$176	-0.9%
Adjusted Grand Total	\$18,388	\$18,692	\$18,516	-\$176	-0.9%

- The fiscal 2016 budget includes a negative deficiency of \$1 million for fiscal 2015 to implement cost containment actions under the Maryland Stem Cell Research Fund. Additionally, the Maryland Technology Development Corporation (TEDCO) is subject to its share of statewide across-the-board cost containment actions that reduces its general funds by approximately \$788,000 over fiscal 2015 and 2016.
- After accounting for cost containment actions, the fiscal 2016 allowance for TEDCO declines by approximately \$176,000 in general funds from the fiscal 2015 working appropriation.
- The corporation does not report personnel data through the State budget system because its employees are not State employees; however, the corporation reports that it has 15 full-time positions and 7 part-time positions.

Note: Numbers may not sum to total due to rounding.

For further information contact: Jody J. Sprinkle

Phone: (410) 946-5530

Analysis in Brief

Major Trends

Program’s Funding Spurs Downstream Investment: A measure of success of the corporation’s Technology Commercialization Fund is the extent to which recipients can secure follow-on funding. In fiscal 2014, recipients were able to secure downstream funding in excess of what was originally projected.

New Measures for the Maryland Innovation Initiative: The Maryland Innovation Initiative, created by Chapter 450 of 2012, is designed to combine the technology transfer expertise of TEDCO and the research expertise of the State’s research universities to speed commercialization opportunities. The corporation has begun to track the number of start-up companies that are formed as a result of the program’s funded projects.

Issues

Maryland Stem Cell Research Program: In fiscal 2014, the Stem Cell Research Program supported 31 research grants that were approved from 151 applications. In fiscal 2015 and 2016, annual funding fell to \$9.4 million, the lowest level since the inception of the program. However, interest in the program remains robust. **The Department of Legislative Services (DLS) recommends that TEDCO brief the budget committees on the activity under the Maryland Stem Cell Research Program, including the impact of the reduction in funding and the significance of the increase in the number of companies applying for funding.**

TEDCO Capital Partners: In 2013, the corporation created a series of investment funds designed to provide venture investment for very specific types of recipients. Private fundraising is ongoing for the funds, and the first investments have been awarded. **DLS recommends that TEDCO brief the budget committees on the activities of TEDCO Capital Partners and how it will complement existing economic development programs and how it will support economic growth in the State.**

Recommended Actions

1. Concur with Governor’s allowance.

Updates

Major Grants: Committee narrative, included in the 2008 *Joint Chairmen’s Report*, requested a complete listing of award recipients for all deals closed or projects approved in fiscal 2008. The corporation is continuing to provide this information for subsequent years.

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TEDCO – Maryland Technology Development Corporation

Operating Budget Analysis

Program Description

The Maryland Technology Development Corporation (TEDCO) was launched in 1998 to help commercialize the results of scientific research and development conducted by higher education institutions, federal laboratories, and private-sector organizations. TEDCO also aims to promote new research activity and investments that lead to business development in Maryland.

To achieve its goals, TEDCO provides nonequity investments to early-stage technology businesses, and it funds development and patenting of new technologies at research universities. TEDCO also develops linkages with federal research facilities in the State and helps companies pursue research funds from federal and other sources.

In 2001, TEDCO was authorized to create, manage, and provide funds for the statewide Maryland Technology Incubator Program. Technology business incubators offer start-up companies physical office space, research space, and an array of business services in hopes of generating new research and jobs.

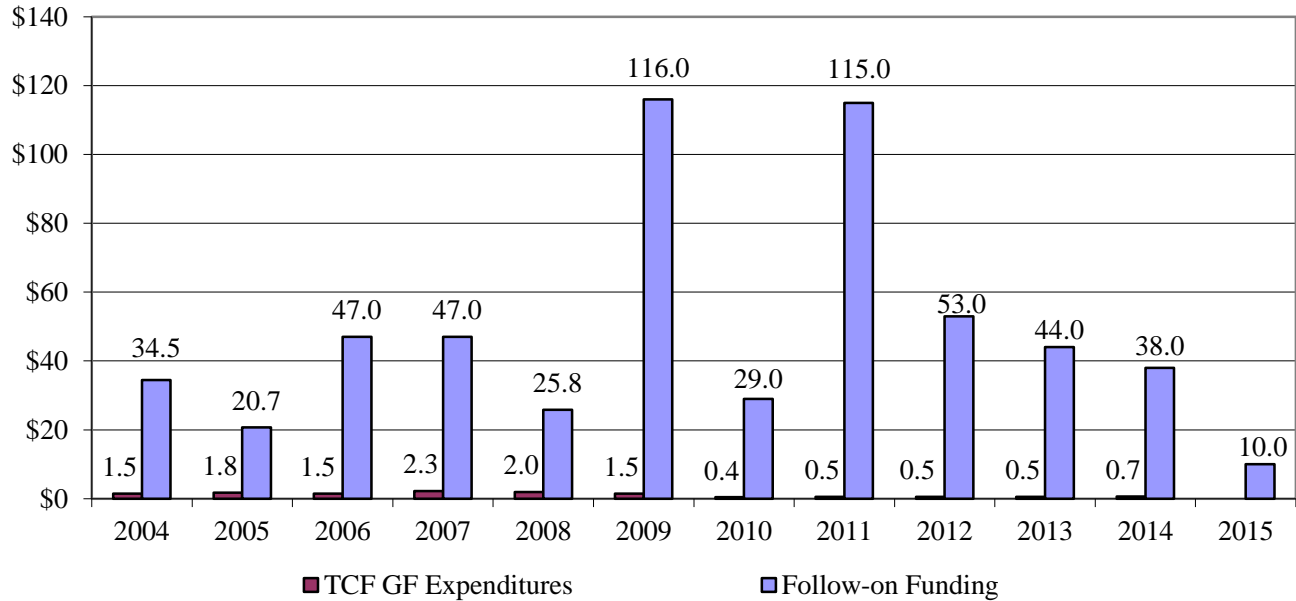
TEDCO supports stem cell research and development at Maryland's research universities and private-sector research corporations in accordance with the Maryland Stem Cell Research Act of 2006. The Maryland Stem Cell Commission established an independent scientific peer review committee to review, evaluate, rank, and rate research based on procedures and guidelines that give consideration to scientific, medical, and ethical implications.

Performance Analysis: Managing for Results

1. Program's Funding Spurs Downstream Investment

The Technology Commercialization Fund (TCF) provides seed investments to early stage technology companies that are economically viable but do not yet have the scale needed for a venture capital investment. The companies must partner with universities in Maryland or federal laboratories to receive funds, be a tenant in a technology incubator, or be a participant in TEDCO's Rural Business Innovation Initiative. A measure of success for the TCF is the ability of funded start-ups to obtain follow-on funding for commercialization. The primary sources of follow-on funds include federal grants, venture capital and other equity investments, and Department of Business and Economic Development (DBED) funds. TEDCO tracks leveraged funds for up to seven years for each TCF recipient. **Exhibit 1** shows follow-on funding for the TCF recipients relative to the amount of general fund investment in the program.

Exhibit 1
Follow-on Funding for Recipients of TEDCO Investments
Fiscal 2004-2015
(\$ in Millions)



GF: general fund
 TCF: Technology Commercialization Fund
 TEDCO: Maryland Technology Development Corporation

Note: Follow-on funding is measured for companies receiving TCF awards.

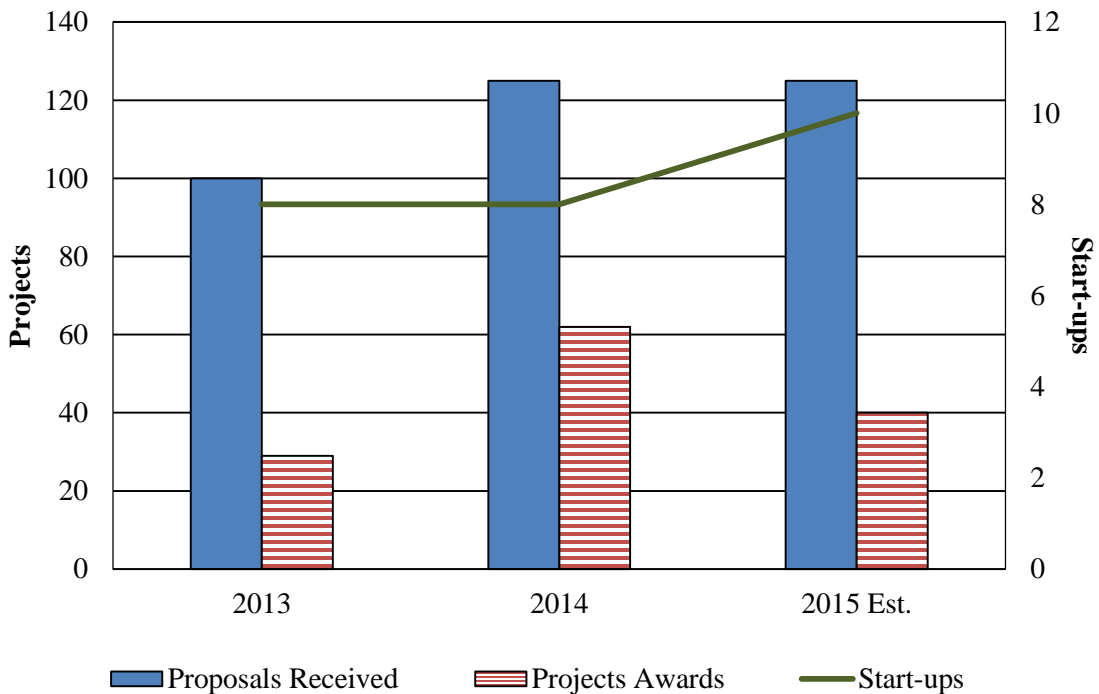
Source: Maryland Technology Development Corporation; Governor’s Budget Books, Fiscal 2007-2016

This measure is of particular importance to the corporation because success in raising downstream funding is a key criterion in evaluating second award proposals. It should be noted that the TCF program is supplemented by nonbudgeted funds from the corporation’s reserve funds, and that follow-on funding reflects the impact of the entire investment by the corporation. As shown in Exhibit 1, general funds have declined from a high mark of \$2.3 million in fiscal 2007 to \$662,000 in fiscal 2014. It does not appear that this decline has significantly dampened follow-on funding for the corporation’s grantees. In fact, follow-on funding exceeded the corporation’s estimates for fiscal 2014 by \$28.0 million. The corporation should consider adjusting its projections upward, given the history of success under the program. Additionally, this measure only tracks the cumulative total of downstream funding. This data may be skewed if a small number of grant recipients are inordinately successful in obtaining follow-on funding. It does not necessarily measure the long-term success rate of the companies that benefit from the program’s funding. The corporation should consider the inclusion of additional performance measures that would mitigate any distortion of the data, including the number of companies that have stayed in operation in the State for seven or more years.

2. New Measures for the Maryland Innovation Initiative

At the suggestion of the Department of Legislative Services (DLS), TEDCO has begun reporting new measures that demonstrate the progress of the Maryland Innovation Initiative (MII). MII, created by Chapter 450 of 2012, is designed to combine the technology transfer expertise of TEDCO and the research expertise of the State’s research universities to speed commercialization opportunities. The program is meant to encourage a foundation from which start-up companies may be formed. **Exhibit 2** shows the number of proposals received under the program, the number of proposals that were awarded funds, and the number of start-up companies formed as a result of the funded innovation.

Exhibit 2
Maryland Innovation Initiative
New Performance Measures
Fiscal 2013-2015 Est.



Source: Governor’s Budget Books, Fiscal 2016

As shown, in fiscal 2013 and 2014, 8 start-ups have been formed as a result of the technology research that was funded through the program. As the program matures, more innovations will reach the stage of commercialization, thereby increasing the number of start-ups formed. TEDCO estimates 10 new start-ups will be formed in fiscal 2015.

Fiscal 2015 Actions

Cost Containment

The fiscal 2016 budget includes a fiscal 2015 cost containment deficiency for the Maryland Stem Cell Research Program. The deficiency withdraws \$1.0 million of the program’s fiscal 2015 appropriation leaving \$9.4 million in general funds for research grants under the program. In addition to the negative deficiency, TEDCO is also subject to statewide across-the-board cost containment reductions in fiscal 2015. At a meeting of the Board of Public Works in early January 2015, \$381,463 of the corporation’s general funds were withdrawn. **Exhibit 3** shows the overall impact of the cost containment actions on the fiscal 2015 appropriation. It is not yet clear how TEDCO will allocate the reduction across its programs.

Exhibit 3
Fiscal 2015 Reconciliation
(\$ in Thousands)

<u>Action</u>	<u>Description</u>	<u>General Fund</u>	<u>Total</u>
Legislative Appropriation with Budget Amendments		\$20,073	\$20,073
Working Appropriation		\$20,073	\$20,073
January BPW Across-the-board	2% across-the-board reduction.	-381	-381
Deficiency Appropriations		-1,000	-1,000
Total Actions		-\$1,381	-\$1,381
Adjusted Working Appropriation		\$18,692	\$18,692

BPW: Board of Public Works

Source: Department of Legislative Services

Proposed Budget

As shown in **Exhibit 4**, the fiscal 2016 allowance is budgeted as a State general fund grant of \$18.5 million, after cost containment. Programmatically, before cost containment \$9.4 million is dedicated to the Stem Cell Research Program, reflecting the cost containment level of funding. Also in the fiscal 2016 allowance is \$4.9 million for the Maryland Innovation Initiative; \$1.0 million for the Cybersecurity Investment Fund; and \$350,000 for the Maryland Industrial Partnership Program. The remaining \$3.2 million in general funds is for the corporation’s operations and traditional technology development and transfer programs.

Exhibit 4
Maryland Technology Development Corporation
General Fund Budget
Fiscal 2013-2016
(\$ in Thousands)

	<u>2013</u>	<u>2014</u>	<u>Working 2015</u>	<u>Allowance 2016</u>
Operations				
Program Development and Outreach	\$0	\$0	\$0	\$0
Technology Transfer Programs and Services	952	952	1,061	1,061
Business Incubation	412	412	250	250
Executive Management and Overhead	919	919	800	800
Operations Subtotal	\$2,283	\$2,283	\$2,111	\$2,111
Programs				
Maryland Technology Transfer and Commercialization Fund	\$490	\$490	\$662	\$662
Maryland Industrial Partnership Program	400	400	400	350
Rural Business			500	500
Cybersecurity Investment Fund			1,000	1,000
Maryland Innovation Initiative	5,000	5,000	5,000	4,900
Programs Subtotal	\$5,890	\$5,890	\$7,562	\$7,412
Total	\$8,173	\$8,173	\$9,673	\$9,523
Stem Cell Research Fund	10,400	10,215	9,400	9,400
Across-the-board Cost Containment	0	0	-381	-407
Grand Total	\$18,573	\$18,388	\$18,692	\$18,516

Note: The fiscal 2015 working appropriation reflects the negative deficiency under the Stem Cell Research Fund.

Source: Maryland Technology Development Corporation

Cost Containment

In fiscal 2016, the corporation is subject to the statewide across-the-board general fund reduction. It is estimated that TEDCO's share of the statewide action is \$407,000 in general funds. It is not yet clear how TEDCO will allocate the reduction across its programs. **The corporation should discuss with the budget committees its plans on allocating the cost containment reductions.**

TEDCO Traditional Programs

The Technology Commercialization Fund and the Technology Validation Program were two of TEDCO's initial programs. Funding has fluctuated for the programs; however, the programs remain central to the mission of the corporation.

Technology Commercialization Fund

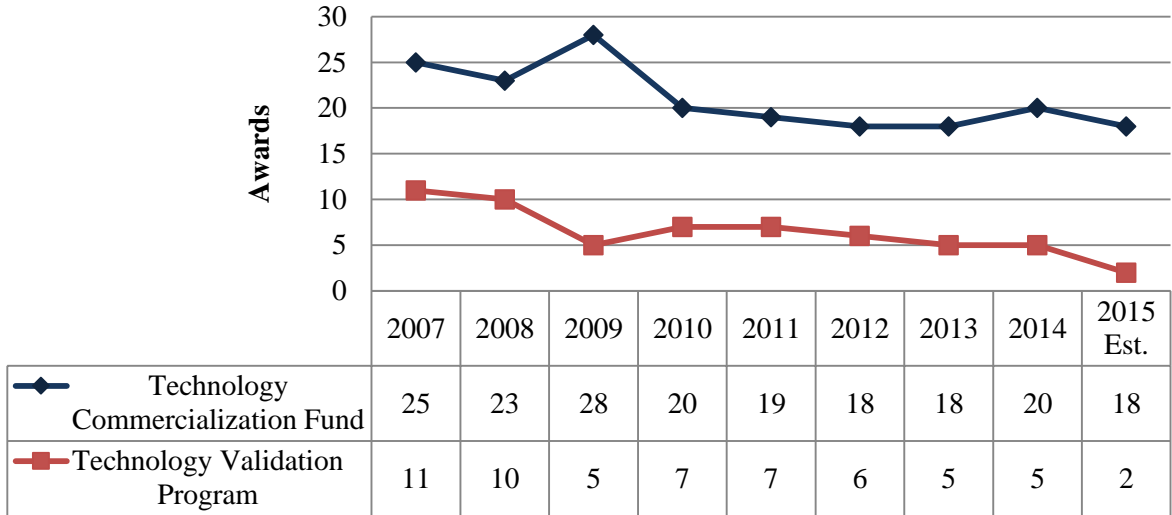
This program awards seed funding to early-stage companies that partner with universities or federal laboratories in Maryland, to companies that are tenants in technology incubators, or to participants in TEDCO's Rural Business Innovation Initiative. The \$100,000 awards are meant to develop and commercialize technology products of Maryland early-stage companies. The fiscal 2016 allowance includes approximately \$662,000 in general funds to support the program. However, the corporation advises that it will supplement the State funds with over \$1 million of its own nonbudgeted funds. The corporation does not report on its nonbudgeted funds, it is therefore unclear the extent to which it can subsidize its programs.

Technology Validation Program

This program provides funds for proof-of-principle studies that confirm the commercial viability of a technology and/or market analyses to establish that a technology meets a significant market need. Initial awards can be up to \$50,000. General funds for the program ceased in fiscal 2010; however, the corporation advises that it will support the program with about \$170,000 of its own nonbudgeted funds.

Exhibit 5 shows the number of program awards under both of these programs. These two programs represent the traditional TEDCO programs that have been funded with general funds. The corporation has consistently reported the awards from these programs through the State's Managing for Results process. Funding is concentrated in the TCF program. A decline in the Technology Validation Program is evident due to the lack of general funds and due to the advent of the Maryland Innovation Program which provides similar services to the State's research institutions.

**Exhibit 5
TCF and TVP Awards
Fiscal 2007-2015 Est.**



TCF: Technology Commercialization Fund
TVP: Technology Validation Program

Source: Governor’s Budget Books, Fiscal 2008-2016

Transferred Funds Remain in Allowance

The fiscal 2014 budget bill included language that restricted \$500,000 in funds under the budget of DBED to be used only, if transferred by budget amendment, by TEDCO for the Rural Business Innovation (RBI) Initiative. This program is designed to provide technical and business assistance to small companies and early-stage technology-based companies located in rural Maryland. This assistance is provided by regional mentors that are contractual staff under TEDCO.

The Administration chose not to transfer the funds for the restricted purpose in fiscal 2014 and instead withdrew the \$500,000 in general funds as cost containment. However, the funding was included in a supplement budget attached to the fiscal 2015 budget bill. The program was originally funded through a short-term federal grant; however, TEDCO has funded it for several years through its own nonbudgeted funds.

Similarly, the fiscal 2015 budget bill included language that restricted \$1 million in general funds under the DBED budget to be used only, if transferred by budget amendment, by TEDCO for the initial funding of the Cybersecurity Investment Fund. Chapter 534 of 2014 created the fund to provide seed and early-stage funding for emerging technology companies located in the State focused on cybersecurity and cybersecurity technology product development. In July 2014, funds were transferred by budget amendment, and the corporation subsequently began making awards.

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As introduced, the fiscal 2016 allowance includes \$500,000 for the RBI program and \$1 million under the Cybersecurity Investment Fund program. It should be noted, however, that the across-the-board cost containment action may reduce the funding available through these programs.

Small Reduction for Maryland Innovation Initiative

The fiscal 2016 allowance includes \$4.9 million in general funds for MII, a reduction of just \$100,000 from fiscal 2015. MII, created by Chapter 450 of 2012, is designed to combine the technology transfer expertise of TEDCO and the research expertise of the State's research universities to speed commercialization opportunities. To qualify for participation in the initiative, each university must provide funds annually. Funds may be used to (1) provide grant funding to a qualifying university-based entrepreneur, or other start-up entity to promote the commercialization of technology developed in whole or in part by a qualifying university; (2) pursue grant funding for the initiative or its qualifying universities; (3) develop and implement guidelines for technology transfer; and (4) identify projects at qualifying universities that may be viable for commercialization.

TEDCO began making MII awards in fiscal 2013. As of September 2014, over 100 awards have been made. According to data submitted to the Managing for Results process, awards have resulted in 16 start-up companies; with 10 additional start-ups expected in both fiscal 2015 and 2016. Total awards have been dispersed to the participating institutions as follows:

- The Johns Hopkins University – 42
- Morgan State University – 3
- University of Maryland, College Park – 24
- University of Maryland, Baltimore – 22
- University of Maryland Baltimore County – 10

Maryland Industrial Partnership Program

The fiscal 2016 allowance includes \$350,000 in general funds for the Maryland Industrial Partnership program. This reflects a reduction of \$50,000 from fiscal 2015. This program is designed to accelerate commercialization by matching funds for university-based research projects that help companies develop new products. Prior to 2010, these funds were budgeted in the Maryland Higher Education Commission and passed through to the University of Maryland. Given TEDCO's expertise with technology commercialization, it was deemed a better fit to be overseen by the corporation. Through the encouragement of intent language in the fiscal 2011 budget bill, TEDCO became more involved in the dissemination of these grants to all State four-year public institutions, not just University System of Maryland (USM) institutions. Two members of the TEDCO staff are included in both the review and approval processes.

Issues

1. Maryland Stem Cell Research Program

The Stem Cell Research Fund was established by Chapter 19 of 2006 to support stem cell research and development at Maryland research institutions or private companies. The Stem Cell Research Commission reviews the proposed research process for applicant projects and makes recommendations to the TEDCO board about research grant awards. The research commission includes 15 members, as directed by statute, who include the Attorney General or designee, patient advocates, individuals with experience in biotechnology, scientists who work for USM and The Johns Hopkins University and do not engage in stem cell research, bioethicists, and individuals with expertise in biomedical ethics as it relates to religion. Several commission members work at institutions that are applying for funding; therefore, the commission has adopted conflict of interest guidelines to help members avoid inappropriately influencing commission decisions.

The fiscal 2016 allowance includes \$9.4 million in general funds to support grants under the Stem Cell Research Fund. This matches the level for fiscal 2015 adjusted for cost containment. This is the lowest amount of annual funding since the inception of the program. The commission is authorized to award four types of grants; the fourth of which was just introduced in 2012:

- **Investigator-initiated Research Grants** are designed for investigators with preliminary data and well established research in the stem cell field. The maximum annual grant amount is \$200,000 a year, for up to three years.
- **Exploratory Research Grants** are designed for investigators who are new to the stem cell field and for exploratory projects without preliminary data. The maximum annual grant amount is \$100,000 a year, for up to two years.
- **Post-doctoral Research Grants** are for exceptional pre-doctoral students and post-doctoral fellows who wish to conduct post-doctoral research on human stem cells in the State with maximum support of \$55,000 a year, for up to two years.
- **Pre-clinical or Clinical Research Grants** are for for-profit companies that wish to conduct research using human stem cells to further medical therapies. Applicants for *pre-clinical* research grant awards may request up to \$500,000 of direct costs, for up to three years. Applicants for *clinical* research grant awards may request up to \$750,000 of direct costs, for up to three years.

Exhibit 6 shows the history of the general funds and grant awards under the program. Most of the available funds are granted for exploratory research. However, the numbers of these grants are declining while the number of post-doctoral grants remain fairly constant. Because the maximum awards for post-doctoral grants are smaller, it allows the corporation to provide more grants with the same or reduced amount of funding. Funding for the program was \$10.2 million in fiscal 2014. In that year, the fund received 151 applications for funding and approved 31: 7 investigator-initiated research grants; 15 exploratory research grants; 8 post-doctoral grants and 1 pre-clinical research grant.

**Exhibit 6
Stem Cell Research Fund
History of Funded Awards
Fiscal 2007-2014**

	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
Investigator-initiated	7	11	6	5	9	9	10	7
Exploratory	17	32	31	20	13	17	10	15
Post-doctoral Fellowships	0	15	21	16	14	14	10	8
Pre-clinical or Clinical	0	0	0	0	0	0	1	1
Total Grants	24	58	58	41	36	40	31	31
Annual General Funds	\$15.0	\$23.0	\$18.0	\$12.4	\$10.4	\$12.4	\$10.4	\$10.2
Applications	86	122	147	141	180	179	171	151
Percent Funded	28%	48%	39%	29%	20%	22%	18%	21%

Source: Maryland Technology Development Corporation

Despite the lower level of funding, interest in the program remains high. In response to its request for applications for fiscal 2015 funds, the corporation received 240 letters of intent. This includes a record high number of applications from companies seeking funding under the program. Applications for the current fiscal year will be reviewed by an independent scientific review panel by March 2015.

DLS recommends that TEDCO brief the budget committees on the activity under the Maryland Stem Cell Research Program, including the impact of the reduction in funding and the significance of the increase in the number of companies applying for funding.

2. TEDCO Capital Partners

In the fall/winter of 2012/2013, TEDCO issued a series of announcements regarding the creation of a family of investment funds, or TEDCO Capital Partners. The family of funds will offer four different investment funds, capitalized with private funds, which will provide venture capital for very specific types of recipients. To date, two of the planned funds have raised capital:

- The Propel Baltimore Fund was created through a partnership between TEDCO, the Abell Foundation, and the France-Merrick Foundation. The fund, which has capital commitments of \$5.2 million, will provide up to \$220,000 as an angel investment in early-stage technology companies located in Baltimore City. To date, the fund has made 11 investments.

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- The Veterans Opportunity Fund is currently raising \$10.0 million in private equity capital to provide funds for entrepreneurs who served in the U.S. Military. To date, the fund has raised \$1.5 million and has made one investment.

There are two additional investment funds that are planned, but as of yet, have not raised any capital:

- The Chesapeake Regional Innovation Fund seeks to raise \$20 million in private equity capital to provide seed capital for start-ups and emerging technology companies that focus on innovations in energy, life sciences, and security.
- The Orange Knocks Fund seeks to raise \$20 million in private equity capital to provide seed funding for cybersecurity technologies.

TEDCO formed a separate limited liability company to provide the structure for the administration of these funds. A management team has been recruited with a variety of expertise in early stage investment. TEDCO earns a management fee for the administration of the funds and is also reimbursed by the funds for office space and overhead. According to TEDCO, there are no public reports on the activity of TEDCO Capital Partners as it is not a public entity. However, it was established under the direction of TEDCO, a quasi-public entity, and as such, it should be mindful of the economic development goals of the State.

DLS recommends that TEDCO brief the budget committees on the activities of TEDCO Capital Partners and how it will complement existing economic development programs and how it will support economic growth in the State.

Recommended Actions

1. Concur with Governor's allowance.

Updates

1. Major Grants

Committee narrative included in the 2008 *Joint Chairmen’s Report* requested a complete listing of award recipients for all deals closed or projects approved in fiscal 2008. The corporation is continuing to provide this information for subsequent years. **Exhibit 7** shows such awards for all of TEDCO’s programs, including those funded by general, nonbudgeted, and federal funds. Some programs, such as the Stem Cell Research Program, award funds by multiple years; therefore, funding levels do not necessarily match appropriation amounts.

Exhibit 7
Maryland Technology Development Corporation
Award Recipients
Fiscal 2014

	<u>Award Amount</u>
Incubator Assistance	
Chesapeake Innovation Center	\$6,000
Emerging Technology Center @Canton	19,000
Emerging Technology Center @Eastern	16,000
Towson Global	9,000
Life Science bwtech@UMBC	9,000
CET @ bwtech	4,000
Cyber @ bwtech	6,000
Frederick Innovation Technology Center	9,000
MCE	22,000
Silver Spring Innovation Center	6,000
Shady Grove Innovation Center (MTDC)	19,000
Rockville Innovation Center	6,000
Germantown Innovation Center	13,000
Wheaton Business Incubator	4,000
Bethesda Green	4,000
Tech Advancement Program	13,000
Technology Assistance Center	4,000
Technical Innovation Center	4,000
Bowie BIC	4,000
	\$177,000
Rural Business Innovation Initiative	
Luke’s Premier Foods, LLC	\$7,200
CleanBay BioFuels	7,400
Hollywood Oysters	6,950
Forever Eden	10,165

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	<u>Award Amount</u>
RESCO/DERP	500
ConnectR	4,885
Imagilin	7,500
Hotdesk & Shore Ventures	1,500
	\$46,100
Joint Technology Transfer	
SR2 Group	\$75,000
	\$75,000
Maryland Innovation Initiative	
SecondWrite LLC	\$100,000
UMB – Pancer	100,000
JHU School of Medicine – Laiho	125,000
JHU – Silber	99,845
JPLC Assoc.	100,000
JHU – Green	100,000
React Labs, LLC	100,000
UMCP – Ghodossi	125,000
UMCP – Issacs	100,000
JHU – Cammarata	100,000
JHU – Johansen	100,000
JHU – Morozov	100,000
Analytical Informatics Inc.	100,000
UMB – Munger	93,125
JHU – Fridman	99,431
JHU – Ostermeier	99,452
UMB – Zimmer	100,000
UMBC – Joshi	99,956
UMBC – Ostrand-Rosenberg	100,000
JHU – O’Brien-Coon	125,000
UMB – Thompson	100,000
UMB – Mougdil	100,000
UMCP – Zhang	100,000
Morgan – Sittler	100,000
UMCP – Zhu	100,000
JHU BSPH – Biswal	100,000
UMBC – Shih	98,000
UMD – Bartolo	100,000
JHU – Kirkness #2	15,000
UMB – Davila	100,000
JHU – Lardo	100,000

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	<u>Award Amount</u>
JHU – Francis	100,000
UMB – Yu	100,000
AquaAnimal Health LLC	125,000
JHU – Meltzer	100,000
UMCP – Chin	149,947
JHU – Walston	100,000
Harpoon Medical Inc.	100,000
N5 Sensors Inc.	98,566
JHU – Boger	100,000
JHU – Schneck	100,000
UMBC – Sowers	100,000
UMBC – Vakharia	100,000
UMCP – DeVoe	99,947
UMB – Pearl	100,000
UMBC – Karabatis	99,993
UMCP – Bederson	100,000
UMCP – Stoliarov	100,000
UMB – Ernst	100,000
JHU – Goldberg	100,000
JHU – Kang	100,000
JHU – van Zijl	98,319
UMB – de Leeuw	99,824
UMCP – DeShong	150,000
BioStrategies Inc.	15,000
Medsense LLC	100,000
	\$5,616,405
Patent Assistance Program	
Otomagnetics	\$10,000
React Labs LLC	10,000
SilcBio	10,000
Vasoptic Medical	10,000
Harpoon Medical	10,000
	\$50,000
Technology Commercialization Fund	
MobiLaps LLC	\$24,266
Diagnostic Biochips, Inc.	100,000
Firejack Inc.	100,000
PrintLess Plans, LLC	100,000
Altenera Technology Inc.	100,000
MD Energy & Sensor Technology LLC	100,000
Zuess, Inc.	100,000

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		<u>Award Amount</u>
	I-Lighting LLC	100,000
	Ariadne Diagnostics LLC	100,000
	Integrata Security LLC	100,000
	Citelighter Inc.	100,000
	Allovue LLC	100,000
	Noble Life Sciences, Inc.	100,000
	An Estuary, LLC	100,000
	Rehabtics LLC	100,000
	Graftworx LLC	100,000
	SurveySnap Inc.	100,000
	Triea Systems Inc.	100,000
	White Box Corporation	100,000
	Tutela Industries LLC	100,000
	Maven Medical Inc.	100,000
		\$2,024,266
Technology Validation Program		
	Salisbury University – Holland	\$39,720
	Envisage LLC	10,000
	UMCES/ Hill	40,000
		\$89,720
Total		
		\$8,078,491
Stem Cell Research Fund		
Investigator-initiated		
Johns Hopkins University	Elias Zambidis	\$690,000
Johns Hopkins University	Ahmet Hoke	690,000
Johns Hopkins University	Hongjun Song	690,000
University of Maryland, Baltimore	Curt Civin	690,000
Johns Hopkins University	Hai-Quan Mao	690,000
University of Maryland, Baltimore	Ke Ren	690,000
Johns Hopkins University	Warren Grayson	689,743
		\$4,829,743
Exploratory		
University of Maryland, Baltimore	Feyruz Rassool	230,000
Phycin LLC	Jun Wang	100,000
Johns Hopkins University	Vasilki Machairaki	230,000
University of Maryland, College Park	Jonathan Dinman	230,000
Johns Hopkins University	Venu Raman	229,920

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		<u>Award Amount</u>
University of Maryland, Baltimore	A-Lien Lu-Chang	230,000
University of Maryland, Baltimore	Marta Lipinski	230,000
Johns Hopkins University	David Nauen	230,000
Johns Hopkins University	Tea Soon Park	230,000
University of Maryland, Baltimore	Joseph Stains	230,000
Johns Hopkins University	Jiangyang Zhang	226,259
Johns Hopkins University	Stephen Eacker	230,000
Johns Hopkins University	Sonia Franco	230,000
Medstar Health Research Institute	Zijun Zhang	223,779
Johns Hopkins University	Nicholas Maragakis	230,000
		\$3,309,958
Post-doctoral Fellowship		
Johns Hopkins University	Tong Ma	110,000
Johns Hopkins University	Manoj Kumar	110,000
Johns Hopkins University	Sang Hoon Kim	110,000
Johns Hopkins University	Hui Lin	110,000
Johns Hopkins University	Lipeng Tian	110,000
Johns Hopkins University	Anna Jablonska	109,858
Johns Hopkins University	Ian Martin	110,000
University of Maryland, Baltimore	Raju Khatri	110,000
		\$879,858
Pre-clinical		
Orgenesis Inc.	Wolpe	406,431
		\$406,431
Stem Cell Totals		\$9,425,990

BIC: Business Innovation Center
 JHU: The Johns Hopkins University
 MCE: Maryland Center for Entrepreneurship
 MTDC: Maryland Technology Development Center
 UMB: University of Maryland, Baltimore
 UMBC: University of Maryland Baltimore County
 UMCES: University of Maryland Center for Environmental Science
 UMCP: University of Maryland, College Park
 UMD: University of Maryland

Source: Maryland Technology Development Corporation

Current and Prior Year Budgets

Current and Prior Year Budgets Maryland Technology Development Corporation (\$ in Thousands)

	<u>General Fund</u>	<u>Special Fund</u>	<u>Federal Fund</u>	<u>Reimb. Fund</u>	<u>Total</u>
Fiscal 2014					
Legislative Appropriation	\$18,573	\$0	\$0	\$0	\$18,573
Deficiency Appropriation	-185	0	0	0	-185
Budget Amendments	0	0	0	0	0
Reversions and Cancellations	0	0	0	0	0
Actual Expenditures	\$18,388	\$0	\$0	\$0	\$18,388
Fiscal 2015					
Legislative Appropriation	\$19,073	\$0	\$0	\$0	\$19,073
Cost Containment	0	0	0	0	0
Budget Amendments	1,000	0	0	0	1,000
Working Appropriation	\$20,073	\$0	\$0	\$0	\$20,073

Note: The fiscal 2015 working appropriation does not include January 2015 Board of Public Works reductions and deficiencies.

Fiscal 2014

Expenditures for fiscal 2014 were reduced by \$185,000 due to a negative deficiency appropriation under the Maryland Stem Cell Research Program. Funds were reduced for the cost containment effort.

Fiscal 2015

The original fiscal 2015 appropriation increased by \$1 million due to a budget amendment that transferred the funds from DBED to TEDCO to fund the newly created Cybersecurity Investment Fund. This transfer is a result of language in the fiscal 2015 budget bill that restricted the funds in DBED's appropriation to be used only by TEDCO to benefit the new program.

Object/Fund Difference Report
TEDCO – Maryland Technology Development Corp

<u>Object/Fund</u>	<u>FY 14</u> <u>Actual</u>	<u>FY 15</u> <u>Working</u> <u>Appropriation</u>	<u>FY 16</u> <u>Allowance</u>	<u>FY 15 - FY 16</u> <u>Amount Change</u>	<u>Percent</u> <u>Change</u>
Objects					
12 Grants, Subsidies, and Contributions	\$ 18,388,192	\$ 20,073,192	\$ 18,923,192	-\$ 1,150,000	-5.7%
Total Objects	\$ 18,388,192	\$ 20,073,192	\$ 18,923,192	-\$ 1,150,000	-5.7%
Funds					
01 General Fund	\$ 18,388,192	\$ 20,073,192	\$ 18,923,192	-\$ 1,150,000	-5.7%
Total Funds	\$ 18,388,192	\$ 20,073,192	\$ 18,923,192	-\$ 1,150,000	-5.7%

Note: The fiscal 2015 working appropriation does not include January 2015 Board of Public Works reductions and deficiencies. The fiscal 2016 allowance does not reflect contingent or across-the-board reductions.

Fiscal Summary
TEDCO – Maryland Technology Development Corp

<u>Program/Unit</u>	<u>FY 14 Actual</u>	<u>FY 15 Wrk Approp</u>	<u>FY 16 Allowance</u>	<u>Change</u>	<u>FY 15 - FY 16 % Change</u>
01 Tech. Development, Transfer and Commercialization	\$ 3,173,192	\$ 3,673,192	\$ 3,623,192	-\$ 50,000	-1.4%
03 Maryland Stem Cell Research Fund	10,215,000	10,400,000	9,400,000	-1,000,000	-9.6%
04 Maryland Innovation Initiative	5,000,000	5,000,000	4,900,000	-100,000	-2.0%
05 Cybersecurity Investment Fund	0	1,000,000	1,000,000	0	0%
Total Expenditures	\$ 18,388,192	\$ 20,073,192	\$ 18,923,192	-\$ 1,150,000	-5.7%
General Fund	\$ 18,388,192	\$ 20,073,192	\$ 18,923,192	-\$ 1,150,000	-5.7%
Total Appropriations	\$ 18,388,192	\$ 20,073,192	\$ 18,923,192	-\$ 1,150,000	-5.7%

Note: The fiscal 2015 working appropriation does not include January 2015 Board of Public Works reductions and deficiencies. The fiscal 2016 allowance does not reflect contingent or across-the-board reductions.