

# Emerging Technology Fund

## Quarterly Report to the Legislature

October 1, 2016 to December 31, 2016

### Summary

The Emerging Technology Fund (ETF) helps to grow technology and advanced manufacturing companies in Massachusetts. Numerous cutting-edge companies have used the ETF to locate or expand, providing jobs and strengthening the innovation economy. Forty-eight loans and guaranties totaling \$68.6 million have closed through December 31, 2016. Companies such as Acacia Communications, Inc. of Maynard, Aspen Aerogels, Inc. of Northborough, BioVex, Inc. of Woburn (acquired by Amgen), Blue Sky Biotech of Worcester, Celldex Therapeutics of Fall River, E-Ink Corporation of Cambridge, Hyaluron, Inc. of Burlington, MicroTest Labs, Inc. of Agawam, Persimmon Technologies Corporation of Wakefield, and Valeritas, Inc. of Shrewsbury have repaid their loans and are thriving in Massachusetts.

Through these financings, the ETF has leveraged private investment for companies while maintaining its ability to serve as an “evergreen fund,” one that provides non-conventional risk capital in the form of debt to development-stage emerging technology companies seeking to commercialize their products. In an effort to increase both employment and production, the Commonwealth passed legislation in 2010 that allowed MassDevelopment to add a working capital term loan financing product, which helps growing companies address staffing and other working capital needs. The new capability has been well-received and more companies are seeking this type of financing. Five term-working capital financings had closed as of December 31, 2016.

In March 2012, the Fund committed \$5 million to a new venture capital fund managed by MassVentures. This partnership allows the ETF to invest equity in earlier-stage companies while leveraging existing resources at MassVentures.

The Fund was last recapitalized in 2007, and in 2010 the Legislature transferred \$15 million to launch the Massachusetts Growth Capital Corporation. Since then, the Fund has taken various measures to ration capital. These measures, as well as early loan payoffs from successful portfolio companies, have stabilized the Fund’s liquidity

position. The Fund has restored its maximum loan size to \$2.5 million and, in doing so, can support larger expansions. However, the Fund continues to rely on loan repayments to capitalize new loans. The Fund may need recapitalization if new investments for business expansions and relocations outpace loan repayments.

### ETF Company of the Quarter



Dynamo Micropower Corporation (“Dynamo”) is a privately held developer and manufacturer of fuel flexible micro-turbine based electrical power generation systems for the emerging oil shale production market. Dynamo has developed a scalable 15-75kW micro-turbine platform that meets the modern challenges found in the oil patch and reduces the cost of energy to near grid competitive levels.

Dynamo’s product provides prime power for upstream oil and gas operations. The micro-turbine would be used to power artificial lift systems (pump jacks), but may also power pumps, compressors, communications or other equipment, as well as provide cathodic protection. Cathodic protection is a technique used to protect metals from corrosion; by flowing an electrical current the right direction through the metal (making it a cathode), the metal can be prevented from rusting. Cathodic protection is typically used to protect critical and expensive machinery, including ships, bridges, and pipelines. The micro-turbine system is designed as a plug-and-play power solution. Fuel is supplied at one end and power is delivered at the other. All fuel separation, load balancing, and energy separation occurs internally so installation and setup time is minimized.

## Background

Chapter 141 of the Acts of 2003 created the Emerging Technology Fund (ETF). The statute requires submission of this quarterly report to certain legislative committees. Established to leverage private investment and to recruit and retain technology-based and advanced manufacturing companies in the Commonwealth, the approximately \$35 million Fund provides loans and guarantees for the purchase, expansion, or improvement of real estate, equipment purchases, and working capital needs. The Fund was initially capitalized with \$24.75 million, recapitalized in September 2006 with \$10 million as a result of an economic stimulus bill passed by the Legislature, and then recapitalized again in November 2007 with an additional \$15 million. In November 2010, \$15 million was transferred from the Fund to capitalize the Massachusetts Growth Capital Corporation in accordance with signed legislation. As of December 31, 2016, the Fund had \$20.7 million available to make loan commitments with a pipeline of \$10.5 million of projects that are considering applying or are in the underwriting process.

The Fund is governed by an Advisory Committee that has adopted the following mission statement:

*The mission of the Emerging Technology Fund is to create jobs in Massachusetts by providing financing for facilities, equipment and working capital that leverages private financing to growing companies employing or commercializing emerging technologies.*

## ETF Activity Summary

As of December 31, 2016, the ETF had made loans and guaranties to 41 companies totaling \$68,647,115. Potential loans of another \$10.5 million were in the ETF pipeline as of December 31, 2016. Additionally, three loans totaling \$4,250,000 were previously approved by the MassDevelopment Board of Directors and were in various stages of the closing process. While the Agency has closed 48 loans and guaranties, 19 of those loans have been paid off in full and are no longer in the portfolio. The Fund also received partial proceeds after liquidation of certain assets on loans provided to eight companies in the portfolio and charged-off \$5,775,098. Six of the companies involved have ceased to exist.

## Closed Loan Activity

### Loans Closed

Company	Loan Amount	Date Closed	Municipality	Industry
Atentiv Holdings, Inc. and Atentiv, LLC	\$3,000,000	3/4/16	Waltham	Education
Biomedical Research Models, Inc.	\$500,000 and \$200,000 (Guaranty)	11/17/10	Worcester	Contract Research (Biotechnology)
Biomedical Research Models, Inc. (Replacement Facilities)	\$500,000 and \$200,000 (Guaranty)	10/29/14	Worcester	Contract Research (Biotechnology)
Biomedical Research Models, Inc. (Replacement Facilities)	\$500,000 and \$500,000 (Guaranty)	12/29/15	Worcester	Contract Research (Biotechnology)
CryoXtract Instruments, LLC	\$800,000	5/15/12	Woburn	Medical Device
Dynamo Micropower	\$175,000	1/30/15	Somerville	Fuel Flexible Turbine Power Systems
Fusion Optix, Inc.	\$1,500,000	8/30/12	Woburn	CleanTech
Ginkgo Bioworks, Inc.	\$1,000,000	12/15/14	Boston	Biotech Engineering
InVivo Therapeutics	\$2,000,000	10/5/12	Cambridge	Medical Device
N12 Technologies	\$2,500,000	12/12/14	Cambridge	Composite Materials
PowerHouse Dynamics, Inc.	\$1,000,000	3/30/12	Newton	CleanTech
Scencio Systems, Inc.	\$650,000	8/18/14	Boxborough	Telemedicine
Scenic Technology Corporation	\$2,500,000	1/26/12	Devens	eCommerce and Fulfillment Systems
TeraDiode, Inc.	\$2,000,000	12/6/12	Wilmington	Industrial Lasers
Sub-Total	\$19,525,000			

## Loans Closed and Repaid in Full

Company	Loan Amount	Date Closed	Municipality	Industry
Acacia Communications, Inc. (paid off 5/14/15)	\$3,000,000	2/25/11	Maynard	Information Technology
Aspen Aerogels, Inc. (paid off 12/2/11)	\$1,500,000	1/12/05	Northborough	Advanced Materials
BioVex, Inc. (paid off 3/1/11)	\$2,500,000	6/29/06	Woburn	Biotechnology
Blue Sky BioTech, Inc. (paid off 7/9/07)	\$150,000	9/24/05	Worcester	Contract Research (Biotechnology)
Celldex Therapeutics, Inc. (formerly Avant) (paid off 3/30/11)	\$903,657	12/12/03	Fall River	Biopharmaceutical
ConforMIS, Inc. (paid off 12/23/16)	\$1,445,000	6/28/11	Burlington	Medical Device
Court Square Group, Inc. (paid off 9/30/16)	\$500,000	3/28/12	Springfield	Software & IT
Cytonome, Inc. (paid off 2/27/09)	\$600,000	6/30/05	Boston	Medical Devices
E-Ink Corporation (paid off 8/31/09)	\$1,000,000	5/15/07	Cambridge	Electronic Display
Hyaluron, Inc. (paid off 6/14/10)	\$1,000,000	12/19/05	Burlington	Contract Manufacturer (Biopharma)
Luminus Devices (paid off 8/22/13)	\$2,500,000	12/26/07	Billerica	Solid State Lighting
MicroTest, Inc. (paid off 7/31/12)	\$799,340 (Loan) \$367,500 (Mortgage Guaranty)	7/6/05	Agawam	Contract Manufacturer (Biopharma)
Middleton Aerospace Corporation (paid off 8/31/16)	\$2,000,000	8/11/06	Haverhill	Military and Commercial Aircraft Component Manufacturer
Nuvera Fuel Cells, Inc. (paid off 12/22/10)	\$2,500,000	1/31/07	Billerica	Hydrogen Fuel Cell Developer and Manufacturer
Persimmon Technologies Corporation (paid off 12/18/15)	\$1,500,000	10/1/13	Wakefield	Vacuum Robots
PoroGen Corporation (paid off 10/2/15)	\$1,000,000	4/1/13	Woburn	Industrial Filtration Systems
Premium Power Corporation (paid off 4/13/12)	\$2,500,000	5/28/09	North Reading	POS Battery Manufacturer
Qteros, Inc. (terminated by borrower 11/22/10)	\$2,000,000	10/29/09	Chicopee	Biofuel Developer
RenaMed Biologics, Inc. (paid off 12/29/06)	\$2,300,000	6/14/06	Westborough	Bioreplacement Therapies
T2 Biosystems, Inc. (paid off 12/30/16)	\$1,687,500	5/9/11	Lexington	Medical Device
Valeritas, Inc. (paid off 5/19/14)	\$2,500,000	1/12/07	Shrewsbury	Medical Device
Sub-Total	\$34,252,997			

## Loans Closed and Principal Partially Charged-Off

Company	Loan Amount	Date Closed	Municipality	Industry
Acusphere, Inc.	\$2,000,000 (\$1,522,133 charged-off 5/19/09)	8/16/04	Tewksbury	Specialty Pharmaceutical
Advanced MicroSensors, Inc.	\$2,000,000 (\$1,462,387 charged-off 3/31/14)	10/13/11	Shrewsbury	Electronics
Beacon Power Corporation	\$2,500,000 (\$898,333 charged-off 3/7/12)	6/30/08	Tyngsboro	Renewable Energy
ECI BioTech	\$630,000 (\$530,004 charged-off 1/31/16)	11/16/07	Worcester	Health Care Products
Konarka Technologies, Inc.	\$2,500,000 (\$344,417 charged-off 11/25/13)	2/11/09	New Bedford	Solar Power Consumer Product Manufacturer
Lilliputian Systems, Inc.	\$2,500,000 (\$298,507 charged-off 6/30/14)	11/13/09	Wilmington	Portable Fuel Cell Power Developer
Spherics, Inc.	\$2,500,000 (\$568,458 charged-off 11/19/08)	7/12/05	Mansfield	Pharmaceutical
WorkshopLive, LLC	\$239,118 (\$150,860 charged-off 6/30/12)	5/26/05	Pittsfield	Music Software and Technology
Sub-Total	\$14,869,118			
<b>Total</b>	<b>\$68,647,115</b>			

## Uncommitted Fund Balance

Between October 1, 2016 and December 31, 2016, the Fund received \$2,064,143 in loan repayments, interest income, and fees. Investment income for the period totaled (\$239,214). The Fund also received \$3,560,769.70 in net proceeds resulting from the sale of common stock related to a preferred stock warrant from a prior portfolio company. Operating expenses were \$84,762 exclusive of loan loss provision. The uncommitted balance of the Fund on December 31, 2016 is \$20,655,389.

	As of 12/31/16
Beginning Fund Balance	\$ 24,750,000
Fund Recapitalization	10,000,000
Fund Recapitalization	15,000,000
<b>Total Funding</b>	<b>49,750,000</b>
<b>Cash Activity (accumulated):</b>	
Loan Disbursements*	(51,371,366)
Loan Principal Repayments	37,734,087
Operating Income	7,993,311
Operating Expenses	(4,626,608)
Transfer to MGCC	(15,000,000)
Investment Income	4,667,094
Non-operating Income	5,358,155
Accrued Expenses	2,699
Accrued Interest Income	(63,558)
Accounts Receivable	-
Prepaid Insurance	(6,060)
Unearned Insurance Premium	-
Deferred Income	833,013
Investment in Common Stock	(1,364,062)
Equity Investment	(3,653,823)
<b>Cash Balance</b>	<b>31,252,882</b>
<b>Less: Cash Commitments:</b>	
Reserved for Guarantees Closed	(922,565)
Undisbursed Loans	(4,078,751)
Committed Loans (not closed)	(4,250,000)
Available Committed Equity - MTDC	(1,346,177)
<b>Uncommitted Cash Balance:</b>	<b>20,655,389</b>
<b>Less:</b>	
Current Pipeline - potential new loans	(10,500,000)
<b>Projected Cash Balance (Deficit)</b>	<b>\$10,155,389</b>
 * Total loan write-offs as of 12/31/16	 \$5,775,098

## Financial and Technical Assistance

MassDevelopment assisted Acusphere, Inc., Celldex Therapeutics, Inc. (formerly Avant Immunotherapeutics, Inc.), and Cytonome, Inc. in finding suitable facilities in the Commonwealth. All loan applicants received assistance in structuring financing for their projects with MassDevelopment and other lenders.

## Geographic Distribution

As of December 31, 2016, loans and guaranties have been closed with companies in each of the Commonwealth's five geographic regions as follows:

Region	Closed Loans	# of Companies
North	\$ 11,500,000	5
South	\$ 5,903,657	3
Central	\$ 13,980,000	7
West	\$ 3,905,958	4
Greater Boston	\$ 33,357,500	22
<b>Total</b>	<b>\$ 68,647,115</b>	<b>41</b>

## Emerging Technology Fund Advisory Committee

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