



Maine Economic Improvement Fund – Allocations and Expenses Consistent with Statutory Intent, Performance Reporting and Fiscal Monitoring Need Improvement

Report No. SR-MEIF-13

Issues OPEGA noted during this review:

- UMS has not established, nor reported on, measurable goals and objectives for MEIF as required by statute. (pg. 25)
- Some metrics included in MEIF Annual Reports were inaccurate and/or inconsistently calculated and reported. (pg. 26)
- UMS has not provided the Legislature with the MEIF Task Force Report required by P.L. 2011, ch. 698 that was due January 2013. (pg. 27)
- Carry forward balances at UMaine and USM reflect practices that may need adjustment to fully utilize MEIF resources and minimize financial risks associated with over-commitments. (pg. 28)
- UMS does not consistently utilize accounting data fields to facilitate monitoring and reporting MEIF expenses. Campuses use separate databases to track and manage their MEIF-related grants and cost-share commitments. (pg. 30)

a report to the
Government Oversight Committee
from the
Office of Program Evaluation & Government Accountability
of the Maine State Legislature

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Table of Contents

Introduction	1
Questions, Answers and Issues	2
Maine Economic Improvement Fund Overview	4
Legislative History	4
MEIF Allocations to Campuses	5
UMS Has Processes to Allocate MEIF Consistent with Statute	6
OPEGA Compared Uses of MEIF to Statutory Purposes	6
UMS Allocates MEIF Through Its Annual Budget Process	7
UMS Allocates Some Funds to the Small Campus Initiative	8
UMaine and USM Use MEIF to Support R&D Infrastructure and Capacity	8
UMaine and USM Allocate Some MEIF to Specific R&D Projects, Often as Match for External Grants	9
MEIF Carry Forward Balances Reflect Differences in Allocation Processes at UMaine and USM	12
MEIF Expenses Appear Consistent with Statutory Intent	14
OPEGA Analyzed MEIF Expenses by Target Sector and Expense Type	14
MEIF Supported Activities in All Seven Target Sectors with Composites Getting the Most Support	14
MEIF Expenses Fell in Five Categories with Compensation Being the Largest Category	17
MEIF Expenses are Subject to Standard UMS Purchasing Policies and Procedures	22
MEIF Expenses in Five-Year Period Generally Appear Consistent with Statutory Purposes	22
MEIF Results Inconsistently or Inaccurately Reported	23
Statute Requires Annual Reporting on Measurable Goals and Objectives	23
UMS Regularly Reports Three Metrics; Value of R&D Grants, Leverage Ratio and Positions Supported	24
Recommendations	25
Agency Response	31
Acknowledgements	32
Appendix A. Scope and Methods	33
Appendix B. Small Campus Initiative Project Proposal Review Criteria	34
Appendix C. UMaine and USM MEIF Balances Carried Forward FY09-13	36
Appendix D. Maine Research and Development Goals	37
Agency Response Letter	

Acronyms Used in This Report

APRGS – Associate Provost for Research & Graduate Studies USM
FY - Fiscal Year
GOC- Government Oversight Committee
E&G – Education and General Funds
EPSCoR – Experimental Program to Stimulate Competitive Research
MEIF - Maine Economic Improvement Fund
MMA – Maine Maritime Academy
OPEGA - Office of Program Evaluation and Government Accountability
ORSP - Office of Research and Sponsored Programs
PARS – Proposal Approval Routing System
PI – Principal Investigator
R&D – Research and Development
SCI – Small Campus Initiative
VPR – Vice President for Research UMaine

UMS – University of Maine System
 UMA – University of Maine Augusta
 UMaine – University of Maine Orono
 UMF – University of Maine Farmington
 UMFK – University of Maine Fort Kent
 UMM – University of Maine Machias
 UMPI – University of Maine Presque Isle
 USM – University of Southern Maine

Maine Economic Improvement Fund – Allocations and Expenses Consistent with Statutory Intent, Performance Reporting and Fiscal Monitoring Need Improvement

Introduction

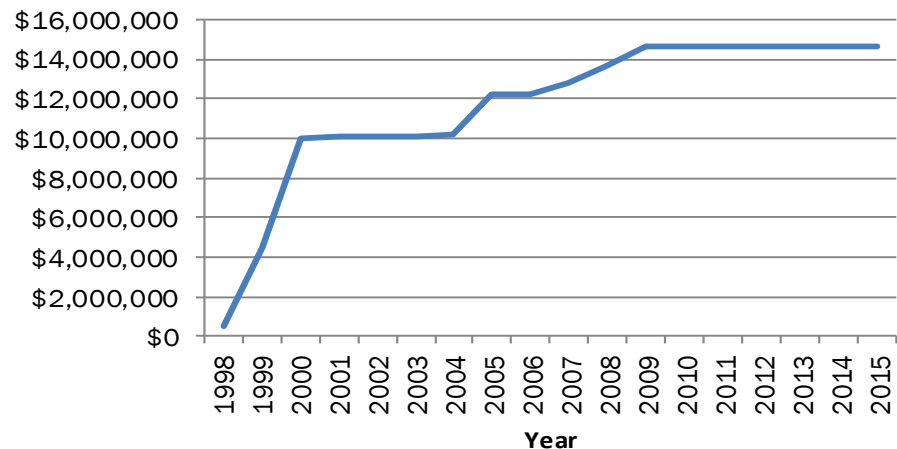
The University of Maine System uses MEIF to invest in applied R&D and support related private enterprise. UMS has received over \$209 million in State MEIF appropriations since the Fund's inception in 1997.

The Maine Legislature's Office of Program Evaluation and Government Accountability (OPEGA) has completed a review of the Maine Economic Improvement Fund. OPEGA performed this review at the direction of the Government Oversight Committee (GOC) for the 126th Legislature.

The Maine Economic Improvement Fund (MEIF) was established by the Legislature in 1997 "to administer investments in targeted research and development and product innovation and to provide the basic investment necessary to obtain matching funds and competitive grants from private and federal sources."¹ The University of Maine System (UMS) is responsible for MEIF and uses it to invest in applied research and development in targeted areas and support the development of private enterprise based on that research and development.

The Legislature appropriates General Funds for MEIF to UMS in the State's biennial budget. As shown in Figure 1, appropriations to MEIF increased over time from \$500,000 in FY98 to \$14.7 million in FY09 and have remained at that level. Since inception, UMS has received a total of \$209,350,000 for MEIF.

Figure 1. MEIF Appropriations 1998-2015



OPEGA's review focused on how UMS allocates MEIF, expenses supported by MEIF and metrics used to measure MEIF accomplishments.

OPEGA's review focused on how UMS allocates MEIF resources, expenses supported by MEIF and metrics used to measure accomplishments attributable to the Fund. OPEGA reviewed policies and procedures and analyzed data for the five-year period FY09-13. See Appendix A for complete scope and methods.

¹ 10 M.R.S.A. § 946

Questions, Answers and Issues

1. What process is used to allocate MEIF to the target areas established in statute and to specific projects within those target areas?

see pages 6-13 for more on this point

The University of Maine System (UMS) and its campuses have established procedures and processes to allocate MEIF for uses consistent with the governing statute. UMS uses MEIF to support research and development infrastructure and capacity, such as particular departments, facilities and equipment, as well as for funding specific research and development projects. Key methods to ensure consistency with statute are contained in UMS' processes for determining which infrastructure functions and specific projects to support with MEIF, and for reviewing, approving and monitoring MEIF budgets.

OPEGA found individuals at UMS, the University of Maine (UMaine) and the University of Southern Maine (USM) responsible for those decisions and budgetary activities are familiar with eligible MEIF target areas, the Fund's statutory purpose and restrictions. We also observed that the Board of Trustees is generally aware of statutory restrictions on MEIF and the Fund's overall purpose. Processes administered by UMS, UMaine and USM to select and approve specific projects for funding differ in some ways, but all include procedures to ensure MEIF-funded projects are consistent with the Fund's governing statute.

2. What is MEIF being spent on and are the expenses consistent with statutory intent?

see pages 14-22 for more on this point

MEIF expenses over the five-year period (FY09-13) spanned all seven target sectors and were contained in five general categories: Compensation, Supplies and Services, Transfers & Construction, Student Aid, and Business Travel. Compensation and Supplies and Services were the two largest expense categories and together accounted for 96% of MEIF expenses over the period.

Compensation accounted for 76.3% of MEIF expenses and experienced a 10.4% increase over the period. This category includes salaries, non-student and student wages, and employee benefits. Supplies and Services accounted for 19.7% of MEIF expenses and experienced a decrease of almost 30% since 2009. This category primarily includes non-employee services; supplies and materials; memberships, dues, and fees; equipment; rentals and leases; and utilities.

Overall, the types of MEIF expenses appear consistent with statutory intent by virtue of being associated with one of the seven target sectors and activities consistent with the general MEIF purposes described in statute.

3. What metrics does UMS use to measure accomplishments attributable to MEIF? Are these results being accurately tracked and reported? Are there other metrics that might be used to measure success?

see page 23-24 for more on this point

Although UMS has not established measurable goals and objectives for MEIF, MEIF Annual Reports in the last five years have regularly reported three metrics related to MEIF at UMaine and USM. These are: the total value of new applied research and development (R&D) grants and contracts in the seven target sectors obtained each year; the ratio of those new R&D grants and contracts to the MEIF appropriation for each year (leverage ratio); and, the number of positions supported by MEIF.

OPEGA found that the leverage ratios reported in the most recent Annual Reports to the Legislature were incorrect. We also found that the number of positions supported by MEIF were calculated differently by UMaine and USM, characterized differently in different sections of the Annual Reports and, where UMaine characterized the positions as "Full-Time Equivalents," calculated inaccurately. Lastly, we noted that none of the metrics reported have included data for funds used by UMS for the Small Campus Initiative.

Since the reported metrics are not linked to any particular goals or objectives, targets or trends, there is little context to evaluate how they represent achievements related to MEIF. There may be other more appropriate metrics for measuring how effectively UMS uses MEIF to advance the statutory purposes for the Fund and/or the overall R&D goals of the University System and State.

OPEGA identified the following issues during the course of this review. See pages 25-30 for further discussion and our recommendations.

- UMS has not established, nor reported on, measurable goals and objectives for MEIF as required by statute.
- Some metrics included in MEIF Annual Reports were inaccurate and/or inconsistently calculated and reported.
- UMS has not provided the Legislature with the MEIF Task Force Report required by P.L. 2011, ch. 698 that was due January 2013.
- Carry forward balances at UMaine and USM reflect practices that may need adjustment to fully utilize MEIF resources and minimize financial risks associated with over-commitments.
- UMS does not consistently utilize accounting data fields to facilitate monitoring and reporting MEIF expenses. Campuses use separate databases to track and manage their MEIF-related grants and cost-share commitments.

Maine Economic Improvement Fund Overview

Legislative History

MEIF was established to provide funding for applied R&D by UMS, its member institutions, employees and students. Originally the Fund was directed to five target sectors. UMS is required to submit an annual report on MEIF to the Governor and Legislature.

Statutory amendments made in 1999 changed the five target sectors to seven targeted technologies. The amendments also specified the information to be included in annual reports.

Additional amendments to statute in 2012 required an annual allocation of MEIF to activities at the smaller universities in the System and additional reporting on those activities. In 2012, the Legislature also charged a Task Force with reviewing certain aspects of MEIF.

The Legislature created the Maine Economic Improvement Fund (MEIF) in 1997² to provide funding for applied research and development (R&D) in five target sectors by the University of Maine System (UMS), its member institutions and employees and students. With respect to MEIF, UMS' Board of Trustees is responsible for administering the Fund and is required to submit an annual report to the Governor and Legislature by January 1 of each year. The Legislature anticipated that UMS would receive matching funds from public and private sources to augment MEIF.

The original target areas were modified in 1999³ when the Legislature created the Maine Technology Institute⁴. MEIF target areas were replaced with the seven "targeted technologies" or sectors noted on page 6. In 1999, the Legislature also amended the MEIF statute with regard to annual reporting on the Fund. The report was now required to include:

- the operations of the fund during the fiscal year;
- the assets and liabilities of the fund at the end of its most recent fiscal year; and
- the annual measurable goals and objectives of the fund, as established by the board, and an assessment of the achievement of those goals and objectives. The goals and objectives must include, but may not be limited to, education, research and development.

In 2012, the Legislature established The Maine Economic Improvement Fund Task Force charged with reviewing MEIF and reporting back by January 2013 (P.L. 2011, ch.698). The review was to include:

- an assessment of the extent to which past distributions have leveraged external funds and enhanced Maine's economic or commercial capacity;
- an assessment of the competitive criteria used; and
- recommendations for any changes necessary to enhance investment in targeted areas and provide basic investment necessary to obtain matching funds and competitive grants.

To date, the Maine Economic Improvement Fund Task Force has not submitted the required report to the Legislature. See Recommendation 3.

In 2012 the Legislature also amended the MEIF statute to require an annual allocation of the State's MEIF appropriation to support R&D activities at the smaller campuses (Augusta, Farmington, Fort Kent, Machias and Presque Isle) within the University of Maine System.⁵ This allocation is referred to as the Small

² L.D. 1854 - An Act to Establish the Maine Economic Improvement Fund enacted as P.L. 1997, ch. 556

³ P.L. 1999, ch. 401

⁴ 5 M.R.S.A. ch. 407

⁵ P.L. 2011, ch. 698

Campus Initiative (SCI). Minimum percentages were set at 2.5% beginning July 1, 2013 and 3% beginning July 1, 2015.

MEIF annual report requirements were also revised to include a summary of the R&D projects funded at the smaller universities and any external funding sources leveraged with those awards. In 2013, the Legislature added the Maine Maritime Academy to the entities eligible for SCI funds⁶.

MEIF Allocations to Campuses

UMS has historically allocated 80% of MEIF appropriations to UMaine and 20% to USM. Since 2009, UMS has allocated a small amount to the Small Campus Initiative and continued to split the remainder 80/20 between the two larger campuses.

MEIF Annual Reports produced by UMS report on the sources and uses of available MEIF funds. Available MEIF funds include the State MEIF appropriation for the year and the balance of the previous year's appropriation.

Since the Fund was first established, UMS has allocated the majority of State MEIF appropriation between UMaine and USM. UMaine has historically received 80% of the appropriation and USM has received 20%. According to UMS, this reflects UMaine's position as the flagship research university within the System and the intent to build research capacity at USM.

Since 2009, UMS has taken a small amount out of the total annual MEIF appropriation and dedicated it to the SCI. The funding dedicated to the SCI is now set by the minimum percentages for the small campuses established in statute. After taking out the SCI allocation, UMS continues to split the remaining MEIF appropriation 80/20 between UMaine and USM. Table 1 shows the MEIF allocations for FY09 through FY13, the five-year period that OPEGA reviewed.

Table 1. Annual MEIF Appropriations by Campus FY2009 – FY2013								
	UMaine	USM	Small Campus Initiative (SCI) Appropriations				UMS	Total
			UMM	UMFK	UMPI	UMA		
FY2009	\$11,680,000	\$2,920,000	\$50,000	\$25,000	\$15,000	\$10,000	-	\$14,700,000
FY2010	\$11,680,000	\$2,920,000	\$50,000	\$42,000	\$8,000	-	-	\$14,700,000
FY2011	\$11,680,000	\$2,920,000	\$53,000	\$47,000	-	-	-	\$14,700,000
FY2012	\$11,600,000	\$2,900,000	\$110,000	\$44,000	\$36,400	\$9,600	-	\$14,700,000
FY2013	\$11,600,000	\$2,900,000	\$100,000	-	\$91,875	-	\$8,125	\$14,700,000
Totals	\$58,240,000	\$14,560,000	\$363,000	\$158,000	\$151,275	\$19,600	\$8,125	

Source: MEIF Annual Reports

⁶ P.L. 2013, ch. 225

Both UMaine and USM also use unrestricted E&G funds to support R&D in the target sectors. UMaine reports this contribution in the Annual Report but USM does not. UMaine's contribution in FY13 was nearly \$4.7 million.

UMaine supplements its MEIF resource by transferring unrestricted Education & General Funds (E&G) into the restricted MEIF account. The E&G funds are used to cover wage and benefit costs traditionally supported by MEIF that have risen, while State MEIF allocations have remained flat. In the MEIF Annual Reports, UMaine reports its contributions of these supplemental funds as a Source of target sector Research and Development (R&D) funds in the financial Sources and Uses statement. As shown in those reports, UMaine's E&G contribution to R&D activities has increased each year from \$3,641,248 in FY09 to \$4,687,951 in FY13. USM also uses some of its unrestricted E&G funds to support R&D activities in the target sectors, but does not show these contributions in the Sources and Uses statement in the MEIF Annual Reports.

UMS Has Processes to Allocate MEIF Consistent with Statute —

OPEGA Compared Uses of MEIF to Statutory Purposes

Statute requires MEIF to be directed to research and development activities in one of seven target technology areas.

To evaluate whether MEIF allocations are consistent with statute, OPEGA developed criteria described below based on a review of the MEIF governing statute, 10 M.R.S.A. ch. 107-C, and discussions with staff at UMS, UMaine and USM. The first criterion is a threshold and all activities must meet it. The other criteria are directly related to other purposes noted in statute and funded activities may meet one or more of them.

MEIF must be used for applied scientific research and related commercial development activities in one of seven target technology areas in the Maine Technology Institute's governing statute, 5 M.R.S.A., ch. 407. These areas, which can only be changed by the Legislature, are:

- biotechnology;
- aquaculture and marine technology;
- composite materials technology;
- environmental technology;
- advanced technologies for forestry and agriculture;
- information technology; and
- precision manufacturing technology.

When an activity involves more than one target technology area, UMS uses a Cross Sector category designation.

The statute also describes other purposes MEIF can be used for within those target sectors.

In addition to the threshold criterion, as per statute, MEIF can be used to:

- provide investment in targeted research and development;
- provide investments in product innovation;
- provide basic investment necessary to obtain matching funds and competitive grants from private and Federal sources;
- support development of private enterprise based on research and development performed within the University of Maine System; and
- protect all intellectual property developed as part of these activities.

Under the statute, MEIF funded activities may also involve projects performed in partnership with private enterprise, the Federal government and private and public research institutions.

UMS, UMaine and USM described the various uses that they allocate MEIF to. OPEGA considers these uses consistent with the general statutory purposes.

UMS, UMaine and USM described using MEIF in the following ways, all of which OPEGA considers consistent with the general purposes found in statute:

- to fund projects or activities that have some commercial potential or relationship to private enterprise, including project partnerships with private enterprise;
- to obtain matching funds and competitive grants from private and federal sources for specific projects;
- to pay for facilities that support project-specific work, which may be supported by MEIF and/or other sources, conducted by researchers in the target areas;
- to pay for patent attorney fees; and
- to support workforce development by compensating undergraduate and graduate student researchers working on applied R&D projects in one of the seven target areas.

OPEGA found UMS and its campuses have procedures and processes to allocate MEIF consistent with the governing statute⁷ as described in the following sections.

UMS Allocates MEIF Through Its Annual Budget Process

Specific allocations and budgets for MEIF at each campus are determined during the annual budget process.

UMaine and USM follow UMS' annual budget process and schedule for MEIF and other campus funds. In the early spring, after approval of the State budget, UMS reserves the minimum percentage of MEIF for the Small Campus Initiative and notifies UMaine and USM campuses of their respective MEIF allocations.

Each campus is responsible for deciding what MEIF will be allocated to and ensuring consistency with statute. Both use MEIF for ongoing costs of facilities and departments as well as specific R&D projects. Campus fiscal offices review MEIF budgets and check to make sure the amount budgeted does not exceed the campus' allocation. In April of each year, after USM and UMaine have developed and reviewed their respective MEIF budgets, they submit them to UMS' Budget Office.

Review and approval of detailed MEIF budgets occurs at the campus level. The UMS Budget Office reviews at a high level to ensure budgets do not exceed available MEIF resources and are supporting target sectors. In accordance with UMS policy, the Board does not review or approve the detail for restricted fund budgets like MEIF.

The UMS Budget Office reviews the MEIF budgets for UMaine and USM at a high level to ensure they do not exceed available resources, and are limited to the seven target areas. The Budget Office submits the entire UMS budget, including all seven campus budgets, to the Board of Trustees in May. The Board reviews and approves a budget that includes MEIF as UMS revenue, but does not detail budgeted uses for MEIF at either the campus or the System level. This is consistent with UMS policy that the Board does not review any restricted fund budgets, such as MEIF, in detail. There is one exception. When MEIF is budgeted for a capital project, such as a building renovation or addition, Board review and approval is required⁸.

⁷ 10 M.R.S.A. ch. 107-C

⁸ Board of Trustees Policy Manual, section 701

Once the Board of Trustees approves the entire University system budget in May, UMS notifies each campus. USM and UMaine then set up their line item MEIF budgets for the upcoming fiscal year that starts July 1.

UMS Allocates Some Funds to the Small Campus Initiative

SCI funds are available to researchers in the five other university campuses and, as of 2013, Maine Maritime Academy (MMA). In 2013, UMS established an annual competitive process to make SCI awards, all of which are for specific projects.

The competitive process designed for SCI is based on the governing MEIF statute. To receive a high score projects must be in a target technology area and meet one or more of the other MEIF statutory purposes. Proposals must include a description of the project's relevance to Maine's innovation economy needs, potential economic impact and measurable outcomes. See Appendix B for the selection criteria.

UMS contracts with the American Association for the Advancement of Science to score the project proposals and the Maine Technology Institute for assistance administering the process. The Chancellor's Office makes final approval and funding decisions.

After UMS finalizes the award decisions, the Budget Office transfers the funds to the awardees' campuses. With MMA, UMS disburses funds upon receiving invoices for project expenditures incurred. Each campus, and MMA, that receives a SCI award is responsible for ensuring expenditures are consistent with approved project budgets and the MEIF statute. Beginning in 2014, each SCI project is also required to submit a final report to UMS.

UMaine and USM Use MEIF to Support R&D Infrastructure and Capacity

Both USM and UMaine use MEIF to support operating costs of research facilities, associated personnel and professional services such as legal fees for patent applications.

At UMaine, the Vice President for Research (VPR) reviews and approves budget submissions from departments partially supported by MEIF, such as the Zebra Fish Facility, Advanced Structures and Composites Facility, and College of Natural Sciences, Forestry and Agriculture. UMaine may also use MEIF as part of a negotiated salary and equipment package to bring researchers to the university. The VPR checks budget forms returned by departments to ensure MEIF is spent in the eligible target areas and allocated amounts do not exceed what is available for the coming fiscal year.

At USM the Associate Provost for Research & Graduate Studies (APRGS) directs MEIF allocations. The APRGS reviews and approves line item budgets submitted by department or laboratory directors partially supported by MEIF such as the Wise Laboratory of Environmental and Genetic Toxicology and the Wilson Information and Innovation Initiative.

MEIF funding is available to researchers at the smaller campuses and Maine Maritime Academy through the SCI. SCI awards are made through a competitive process established by UMS with criteria based on the MEIF statute.

UMaine and USM allocations and budgets for general support of R&D infrastructure and capacity are reviewed and approved by upper level administrators responsible for research activities at each campus.

UMaine and USM Allocate Some MEIF to Specific R&D Projects, Often as Match for External Grants

The MEIF-supported laboratories and facilities at both UMaine and USM function as platforms for R&D projects that may also be supported by MEIF. For example, a grant-funded biomedical project at UMaine may involve zebra fish and use the campus' MEIF-supported Zebra Fish Facility.

UMaine, and to a lesser extent USM, both use MEIF as match or cost share for research projects that compete for external funding from entities such as NASA and the National Science Foundation. Researchers, referred to as Principal Investigators (PI), seeking grants from private and federal entities to support their R&D projects are often required to have matching funds.

UMaine's Grant Proposal Process Seeks to Maximize External Project Funding

UMaine often commits MEIF as matching funds in its proposals for external research grants.

At UMaine the Office of Research and Sponsored Programs (ORSP) administers the proposal process for research grants. PIs apply for these grants and are responsible for project activities and expenses. MEIF can be a source of matching funds for these grant-funded projects. Many projects are multi-year, creating an ongoing commitment of MEIF match in future fiscal years.

UMaine uses internal competitive processes to select proposals for specific grants that limit the number of proposals an institution can submit. For example, the State can submit only one proposal every five years to the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR) for awards of up to \$20 million. These proposals, to be successful, usually include multiple partners such as other UMS campuses, private educational institutions, non-profit research institutions and private companies.

ORSP administers the grant proposal process and proposals are approved by the VPR and others before being submitted to the granting entity. The VPR also approves the amount of MEIF to be used as match.

PIs meet with the VPR to request MEIF for matching funds before formally submitting grant proposals. Once the VPR has informally approved a PI's request for MEIF match, s/he must submit a formal project proposal in ORSP's internal approval system or PARS (Proposal Approval Routing System).

In PARS, PIs are required to identify a project's target sector(s), describe the project and complete a line item budget for the term of the project. PIs must obtain several formal approvals, which are documented in PARS, before submitting a proposal to an external funding entity. The VPR, and others responsible for approving proposals, reviews each research project description, budget, and the PI(s) involved. Among other things, the VPR checks to see that MEIF will be used in a target sector and will be leveraged. Based on this information, the VPR formally approves an amount of MEIF for match and a term length for the potential MEIF commitment to be paid.

Many multi-year grant projects will need MEIF each year, creating forward commitments of MEIF. UMaine, however, budgets only the amount of MEIF expected to be needed as match in the upcoming budget year.

ORSP tracks, and notifies the VPR's Office of grant proposals submitted, as well as grants anticipated and received, that require MEIF as match. The VPR's Office tracks the MEIF commitments needed in future years.

UMaine recognizes that not every grant proposal submitted will be successful and tries to maximize its resources by approving more MEIF as match for proposals than may be available in any given year. The timing of grant awards also affects when MEIF funds are actually needed.

The VPR and ORSP track these moving targets for potential over commitments of MEIF or opportunities to use MEIF that is unexpectedly available for other one-time uses.

UMaine refers to matching costs as forward commitments. Many projects are multi-year and will need MEIF each year of the project or as a lump sum in the final year. UMaine budgets just the amount of MEIF needed as match for the upcoming fiscal year and places match funds in a cost share account that is separate from the project grant funds, but tracked along with grant expenditures. According to ORSP, some grantors fund multi-year projects one year at a time basing annual renewals on milestones achieved or other results. A grant budget year does not always correspond with the UMS fiscal year.

ORSP uses PARS to track submissions and approvals of project proposals, as well as potential match amounts, with match obligations for projects that are underway or scheduled to start in the upcoming fiscal year. If a project is awarded grant funding, ORSP notifies the VPR's office of the MEIF match or cost share amount needed and duration of the project. Grant funded projects have their own start dates based on the date of executed funding agreements. These dates do not coincide with the university fiscal year. Grant awards and executed agreements for project proposals submitted in one fiscal year may not be finalized until the next.

Throughout the UMS fiscal year, ORSP notifies the VPR's Office of grant proposals that have been submitted for funding and, if awarded, will require MEIF. ORSP also notifies the VPR of grant awards it expects UMaine to receive and those that are received. The VPR's Office uses this information to track MEIF commitments needed in future years as part of the annual budget development process.

UMaine recognizes that not every grant proposal submitted is successful and tries to maximize its use of university resources by approving more grant proposals for submittal than can be supported with MEIF, or other university match sources, in any given fiscal year. Consequently, potential MEIF match requirements exceed available resources. However, by over committing support for external grant proposals, UMaine is more likely to fully utilize and leverage its resources. The VPR and ORSP actively track this moving target because of the possibility of over committing match sources, including MEIF.

According to staff in the VPR's Office, UMaine fully commits MEIF at the start of each fiscal year and does not reserve any funds for unanticipated events or unbudgeted items. However, the date UMaine must start expending MEIF match amounts can change because an agreement with a grantor may take longer to negotiate than anticipated. MEIF match amounts for a given year can also change if a project does not get an expected grant award, receives a grant amount that is less than requested or receives the grant later than anticipated.

Changes such as these can free up MEIF for unbudgeted items requested during the year allowing the VPR to make one-time commitments for things like equipment and software that will support the work of multiple researchers. The VPR and VP of Innovation and Economic Development provided some examples of such unbudgeted uses of MEIF, including expenses for a piece of equipment that needs to be repaired, grants with a MEIF match that are awarded but were not planned for in the current fiscal year, or expenditures made at the President's direction.

USM Awards MEIF Through Multiple Competitive Processes; One Uses MEIF as Match

USM limits the MEIF awarded through its competitive processes to the amount of MEIF available in that year. If MEIF is used for match on a multi-year grant, USM sets aside the total match required for the duration of the project out of current year MEIF resources.

After allocating funds needed to support research facilities, personnel and services, USM uses five competitive processes to distribute its remaining MEIF funds. The five competitions, highlighted in Table 2, are Commercialization Gap Fund, Multi-Disciplinary Research Cluster Development Seed Fund, Core Equipment, MEIF Cost Share/Match, and MEIF Travel Fund. Each competitive process has criteria to ensure funding awards are for activities consistent with the MEIF statute. Only one, Cost Share/Match, requires that MEIF be used as cost share.

USM approves proposals up to, but not over, its total annual unallocated amount of MEIF. When a multi-year project with MEIF as match is awarded external grant funding, USM sets aside the total match required for the project’s duration at the time of the award. If there are not enough high quality projects seeking MEIF support, USM will carry a balance forward to the next year.

Table 2. USM Competitions for MEIF Funding

COMPETITION	PERIOD OPEN	EVALUATED BY	FINAL DECISION
Commercialization Gap Fund Program	Three Times Per Year	USM Review Committee Including External Reviewers with Subject Matter Expertise	Provost and APRGS*
Multi-Disciplinary Research Cluster Development Seed Fund	Annually	Two Stages: 1. External Reviewers with Subject Matter Expertise 2. USM Internal Evaluation Panel	Provost and APRGS
Core Equipment	Once Every Two Years	USM Core Equipment Committee with Members from STEM** Departments	Provost and APRGS
MEIF Cost Share Match	Ongoing	Review Committee with STEM** Department Representatives	APRGS
MEIF Travel Fund	Ongoing	APRGS*	APRGS*
* Associate Provost for Research and Graduate Studies ** Science, Technology, Engineering and Mathematics			

Commercialization Gap Fund proposals are accepted three times a year. They must involve a clearly defined, or partially tested, invention or discovery that is ready to move closer toward commercialization. USM faculty and staff with defined, or partially tested, inventions can apply for two types of grants under the Commercialization Gap Fund:

- Commercial Feasibility Study grants of up to \$5,000 for market analyses to assess an invention’s commercial viability; and
- Proof of Concept grants of up to \$75,000 for addressing obstacles to moving inventions and discoveries closer to commercialization.

Each of USM's competitive processes has established criteria to ensure MEIF is awarded to activities consistent with statute. If there are not enough high quality projects seeking MEIF support, USM will carry forward the MEIF balance to the next year.

The Multi-Disciplinary Research Cluster Development Seed Fund is available once a year. It is for faculty-led multi-disciplinary research across colleges within USM and in partnership with the private sector and community as demonstrated by requiring a private industry and a community partner. Cluster Development Seed Fund proposals must demonstrate faculty collaboration across two or more colleges at USM.

Both of these competitions have stringent requirements and review committees with members that include "non-conflicted" reviewers external to USM with expertise in the field, to evaluate and recommend proposals. Proposals must be in alignment with one or more of the seven target technology areas.

USM's three smaller competitions are Core Equipment, MEIF Cost Share/Match, and MEIF Travel Fund. Core Equipment funds are available once every two years. The two other competitions are available on a rolling basis throughout the year. Each has guidelines to ensure compliance with the MEIF statute that require the equipment, cost share or travel be associated with one of the seven MEIF target areas.

A committee composed of one representative from each STEM (Science, Technology, Engineering and Mathematics) department evaluates Core Equipment Fund requests based on a number of criteria, including a determination that the research supported by the equipment is aligned with one or more of the seven MEIF target areas.

For Cost/Share Match, a committee consisting of appropriately qualified representatives from the STEM departments evaluates the proposals. Proposals must align with the seven target areas. The review committee forwards recommendations to the APRGS for final approval.

MEIF Travel Fund requests must be for travel to present results at national meetings or conferences for research that fits into one of the seven target areas. Applicants must demonstrate that no other travel resources are available. The APRGS reviews and approves MEIF Travel requests.

MEIF Carry Forward Balances Reflect Differences in Allocation Approaches

There are differences in the ways USM, UMaine and SCI make MEIF allocation decisions to fund specific projects. UMS' process for allocating SCI funds limits allocations to the amount available for SCI in the current year, and tries to fund no less than 100% of requested MEIF for individual proposals. Consequently, UMS can have an unused MEIF amount that it carries forward to the next year. For example, in FY13 after fully funding the two highest scoring projects, there were insufficient funds left to fund the entire third place project. UMS kept the remaining funds, which will be added to the following year's SCI competition.

There are differences in the ways UMS, UMaine and USM choose to allocate MEIF for projects.

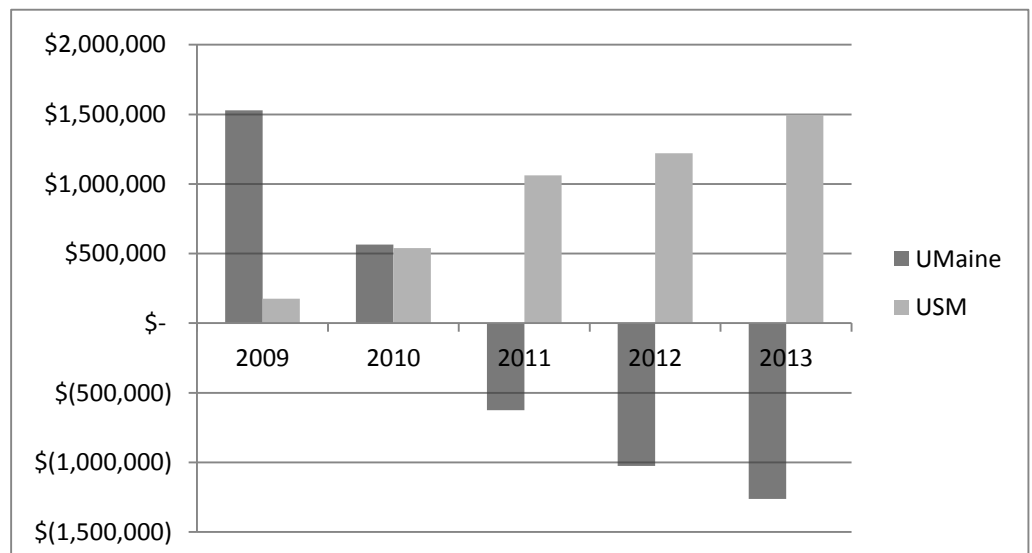
USM’s process for awarding MEIF as match for projects applying for external grants limits awards to funds available in the current year. If proposals do not get external funding, USM carries the unallocated amount forward to the next fiscal year. For multi-year projects, USM commits the full MEIF match amount needed over the entire project when it is awarded funding, not just the amount needed in the current year.

OPEGA observes there are pros and cons to each approach with regard to financial risk and full utilization of resources. The approaches also appear to be reflected in MEIF carry forward balances with UMaine carrying a negative balance and USM a positive one.

UMaine commits more MEIF as match than is available in any given year because it expects that not all projects competing for outside grant funding will succeed. This approach aims to maximize leveraging of MEIF.

OPEGA observes that there are pros and cons to each approach with regard to financial risk and full utilization of resources. See Recommendation 4. Data from MEIF Annual Reports for the past five years appears to show the effect of these two approaches on MEIF balances as shown in Figure 2. UMaine is carrying a negative balance forward and USM is carrying a positive balance forward. For more detail on these balances see Appendix C.

Figure 2. UMaine and USM Carry Forward 2009-2013



MEIF Expenses Appear Consistent with Statutory Intent ---

OPEGA Analyzed MEIF Expenses by Target Sector and Expense Type

OPEGA's analyses of MEIF expenses were affected by the accounting system data we received for UMS' two MEIF accounts – Fund 23 and 24.

To determine what MEIF funds are used for and whether those uses are consistent with statute, OPEGA analyzed MEIF expenses, MEIF transfers for cost sharing and the cost sharing expenses themselves for the period FY09– FY13. OPEGA used data requested and obtained from UMS' accounting system; general ledger, accounts payable and payroll.

The uses reported in the Annual Reports are limited to the activities in one restricted University of Maine System fund, referred to and coded in the accounting system as Fund 23, which captures most MEIF expenses and all transfers to a separate fund, Fund 24, for MEIF-funded cost sharing expenses. Actual expenses paid that are part of a cost share commitment for a grant or contract are captured in Fund 24.

In the data OPEGA obtained, Fund 23 expense entries all included a program number but Fund 24 expense entries did not. Fund 24 expense entries all included a project number, but project numbers were not used consistently for applicable Fund 23 expenses. The differing data availability in the two funds, while consistent with UMS accounting policies, impacted OPEGA's expense analyses.

Consequently, OPEGA used two different data sets for the sector and expense type analyses and was unable to perform an analysis by project.

Because program numbers were needed to tie expenses to the MEIF target sectors, OPEGA used MEIF activity in Fund 23 (expenses and transfers for cost sharing) to analyze the use of funds by sector. The analysis of expense types, however, was done using actual expenses from both Funds 23 and 24.

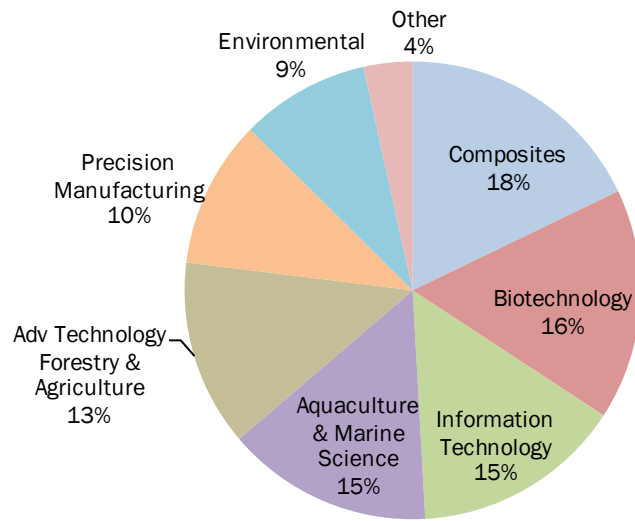
The inconsistent use of project codes in Fund 23 also prevented OPEGA from determining the extent to which MEIF expenses were connected to specific projects, as opposed to capacity or infrastructure, and prevented any analysis by project. In addition, coding inconsistencies between USM and UMS resulted in an inability to report all expenses by sector accurately. See Recommendation 5.

MEIF Supported Activities in All Seven Target Sectors with Composites Getting the Most Support

Four target sectors each received 15% or more of total MEIF support in the five year period FY09– FY13.

Figure 3 illustrates the total amount and percent of MEIF funding used by target sector over the five year period (FY09–FY13) OPEGA reviewed. The Composites sector received the most MEIF support followed by Biotechnology, Information Technology and Aquaculture & Marine Science. UMaine used MEIF to support activity in all seven target sectors in each of the five years, while USM's use of MEIF was primarily in Biotechnology and Information Technology.

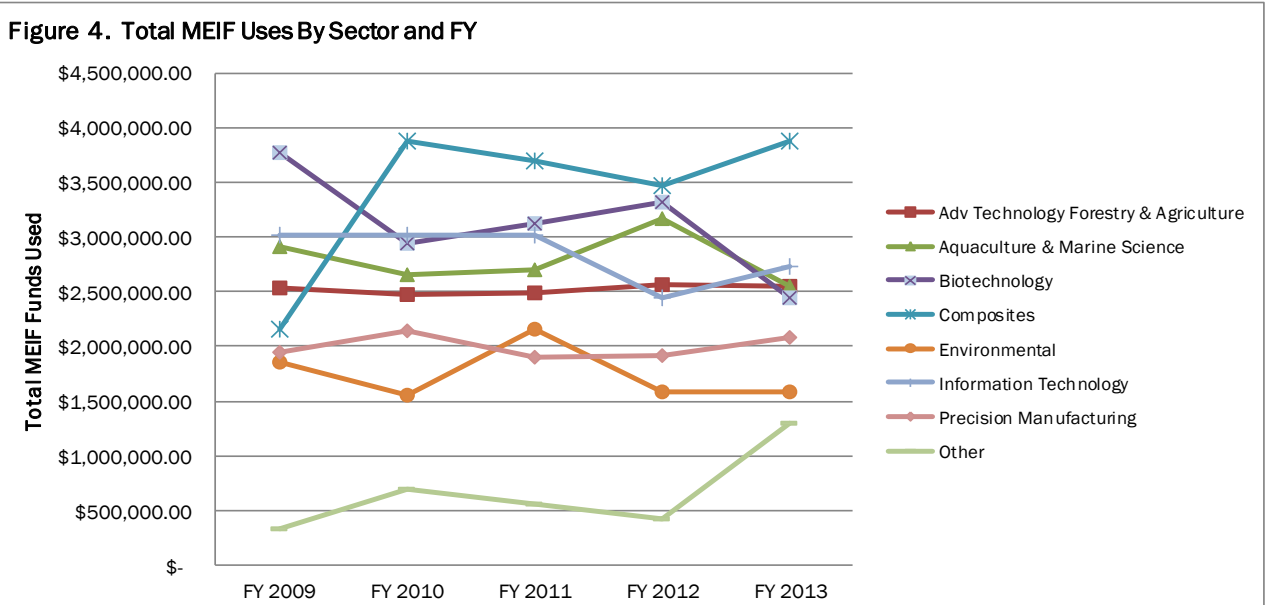
**Figure 3. Total MEIF Uses by Target Sector
FY09 - FY13**



Sector	Total Expenditures FY 09 to FY 13
Composites	\$17,069,544
Biotechnology	\$15,599,685
Information Technology	\$14,245,565
Aquaculture & Marine Science	\$13,988,715
Adv Technology Forestry & Agriculture	\$12,602,842
Precision Manufacturing	\$9,969,511
Environmental	\$8,743,674
Other (unallocated, cost share)	\$3,301,998

MEIF support for each target sector varied year to year. Sectors with the most significant change from FY09 to FY13 were Composites, with an 80% increase, and Biotechnology, with a decrease of about 35%.

As shown in Figure 4, the amount of MEIF support for each sector fluctuates from year to year. The target sectors that experienced the most significant changes in amount of MEIF support in FY13 compared to FY09 were Composites, with an increase of about 80%, and Biotechnology with a decrease of about 35%. Support for other sectors remained relatively flat with the exception of noticeable one year increases for Environmental and Aquaculture & Marine Science in FY11 and FY12 respectively, and a one year decrease in Information Technology in FY12.



These overall trends in sectors reflect the use of MEIF funds at UMaine and USM since most funds are at those two campuses. Table 3 provides the MEIF uses by campus, including small campuses, and sector for the five-year period, showing total funds allocated, percentage of total campus funds supporting each sector, and net dollar and percent change between FY09 and FY13.

Table 3: MEIF Uses By Campus and Sector for Fiscal Years 2009 - 2013				
Sector	Sector Total FY09 - FY13	Sector as % of Total	Net \$ Change FY09 to FY13	% Change FY09 to FY13
University of Maine				
Adv Technology Forestry & Agriculture	\$12,596,842	15.4%	\$17,353	0.7%
Aquaculture & Marine Science	\$13,679,375	16.7%	(\$397,336)	-13.8%
Biotechnology	\$4,915,169	6.0%	(\$375,481)	-29.3%
Composites	\$17,069,544	20.9%	\$1,727,601	80.2%
Cross Sector	\$1,659,495	2.0%	\$62,701	23.6%
Environmental	\$8,658,096	10.6%	(\$263,907)	-14.4%
Information Technology	\$12,738,308	15.6%	(\$593,752)	-21.5%
Precision Manufacturing	\$9,969,511	12.2%	\$133,749	6.9%
Unallocated	\$544,477	0.7%	\$387,501	N/A
University of Maine Total	\$81,830,818	100.0%	\$698,430	4.5%
University of Southern Maine*				
Biotechnology	\$10,630,348	80.9%	(\$980,512)	-39.3%
Cross Sector	\$415,310	3.2%	\$143,646	N/A
Information Technology	\$1,413,143	10.8%	\$273,817	106.1%
Unallocated	\$674,591	5.1%	\$373,340	595.4%
University of Southern Maine Total	\$13,133,391	100.0%	(\$189,709)	-6.7%
Small Campus Initiative (SCI) and System Wide Services				
Adv Technology Forestry & Agriculture	\$6,000	1.1%	0	N/A
Aquaculture & Marine Science	\$309,340	55.5%	24,930	55.4%
Biotechnology	\$54,169	9.7%	26,844	N/A
Environmental	\$85,578	15.4%	-19,448	-80.1%
Information Technology	\$94,115	16.9%	34,326	2117.2%
System Wide Services	\$8,125	1.5%	8,125	N/A
SCI and System Wide Services Total	\$557,326	100.0%	74,777	105.5%
Grand Total	\$95,521,535	100.0%	583,498	3.1%
Source: OPEGA analysis of University of Maine System's MEIF expenditure data.				
*Actual sector expenses may not be accurate due to coding inconsistencies between USM and UMS.				

At UMaine, in FY09, activity in the Composites sector totaled \$2.1 million, but averaged \$3.7 million over the following four years as it became the sector with the greatest amount of activity. The Biotechnology sector at both UMaine and USM experienced a change in the opposite direction during this time. In FY09, Biotechnology activity at UMaine totaled \$1.3 million, but averaged only \$900,000

over the following four years. At USM, Biotechnology activity, which averaged \$2.27 million from FY09 to FY12, decreased dramatically to \$1.5 million in FY13.

In the Information Technology sector, there were increased expenses at USM and expenses decreased at UMaine. The Information Technology sector at UMaine averaged \$2.8 million from FY09 through FY11, but decreased to an average of only \$2.2 million over the final two years of the period. At USM, Information Technology activity averaged \$220,000 from FY09 to FY12, and increased to \$530,000 in FY13.

Both campuses, at one point or another over the period, have supported projects that are associated with more than one target sector and have used a Cross Sector category to capture those activities. There are also points in time where MEIF dollars are captured by the campuses in an Unallocated category prior to being used on specific projects. Table 3 shows the dollars that were in those categories in the MEIF use data OPEGA analyzed and the total of Cross Sector and Unallocated categories are shown as “Other” in Figures 3 and 4.

MEIF Expenses Were in Five General Categories, Compensation Being the Largest Category

OPEGA sought to identify the primary categories of expenses, as well as trends in those expense categories, for the five years analyzed. In examining what MEIF funds are spent on (rather than in what sectors), OPEGA analyzed all actual MEIF expenditures from Fund 23 and 24 over the five-year period. This analysis, unlike the preceding sector analysis, includes the actual cost sharing expenses paid from Fund 24, rather than the funds transferred into Fund 24 to support the projects where MEIF was committed as cost share.

The amount transferred to a project for cost sharing purposes represents the MEIF funds projected to be needed when the budget is developed in any given year. This number may, and often does, differ from actual expenses incurred. Consequently, the total amount of expenditures analyzed in this section is less than the total amount of activity (non-cost sharing expenses and transfers for cost sharing) analyzed in the preceding section by approximately \$1,000,000 annually.

Although the State MEIF appropriation remained the same over the period, total MEIF expenses increased by 3.4% as shown in Table 4. This reflects the combination of an overall increase in MEIF expenses for UMaine and SCI that is somewhat offset by a decline in expenses at USM. UMaine covers the increase in expenses by increasing its contribution of E&G funds to the restricted MEIF fund and using unrestricted funds to temporarily cover current expenses with the expectation that future MEIF appropriations and campus cost sharing will continue in subsequent years. See Recommendation 4.

OPEGA's analysis of expense categories showed that MEIF expenses increased by 3.4% over the five-year period reviewed and fell into five general categories. The trend reflects a combination of an overall increase in expenses for UMaine and SCI partially offset by a decline in expenses for USM.

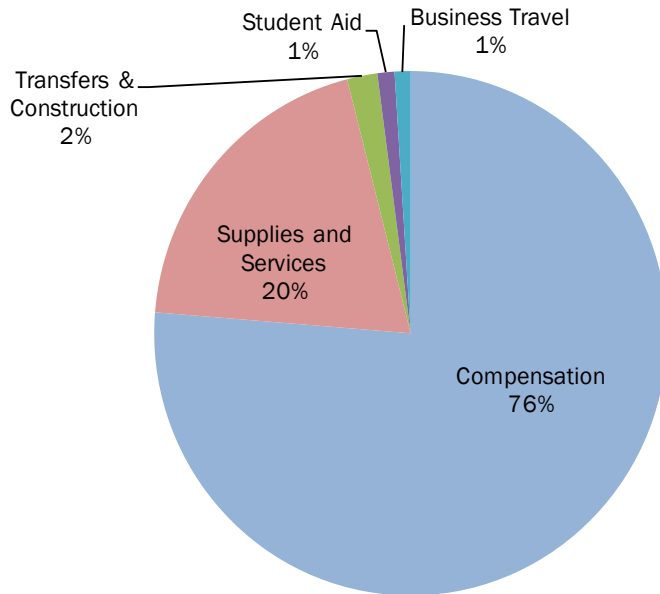
OPEGA's analysis shows that MEIF expenses were contained in five general categories. Table 4 provides the breakdown of expenses in these categories by campus showing total expenses, percentage of total campus expenses for each category, and net dollar and percent change between FY09 and FY13. These basic expense categories are:

- Compensation;
- Supplies and Services;
- Student Aid;
- Business Travel; and
- Transfers & Construction.

Table 4. Primary Categories of MEIF Expenses for Fiscal Years 2009 - 2013 by Campus				
Expense Category	Total Expense FY09 - FY13	Category as % of Total	Net \$ Change FY09 to FY13	% Change FY09 to FY13
University of Maine				
Compensation	\$61,354,571	78.9%	\$1,786,149	16.0%
Supplies and Services	\$13,983,826	18.0%	(\$996,708)	-29.9%
Student Aid	\$975,380	1.3%	(\$136,233)	-49.6%
Business Travel	\$804,439	1.0%	(\$8,032)	-5.4%
Transfers Out	\$533,551	0.7%	\$156,792	156.0%
Capital Construction Costs	\$105,326	0.1%	(\$6,737)	-100.0%
University of Maine Total	\$77,757,092	100.0%	\$795,231	5.3%
University of Southern Maine				
Compensation	\$7,807,077	62.2%	(\$463,614)	-24.8%
Supplies and Services	\$3,551,708	28.3%	(\$244,709)	-36.1%
Transfers Out	\$1,090,804	8.7%	\$425,855	N/A
Business Travel	\$97,817	0.8%	\$6,786	95.4%
Student Aid	\$2,184	0.0%	N/A	N/A
Capital Construction Costs	\$1,888	0.0%	\$1,888	N/A
University of Southern Maine Total	\$12,551,477	100.0%	(\$273,794)	-10.7%
Small Campus Initiative (SCI) and System Wide Services				
Supplies and Services	\$399,668	71.7%	\$39,352	67.1%
Compensation	\$146,833	26.3%	\$39,301	467.6%
Business Travel	\$10,824	1.9%	(\$3,876)	-100.0%
SCI Total	\$557,326	100.0%	\$74,777	105.5%
Grand Total	\$90,865,896	100.0%	\$596,214	3.4%
Source: OPEGA analysis of University of Maine System's MEIF expenditure data.				

As shown in Figure 5, Compensation and Supplies and Services are the two most significant expense categories and together account for 96% of MEIF expenses over the five year period.

**Figure 5. Primary Categories of MEIF Expenses
FY09 - FY13**



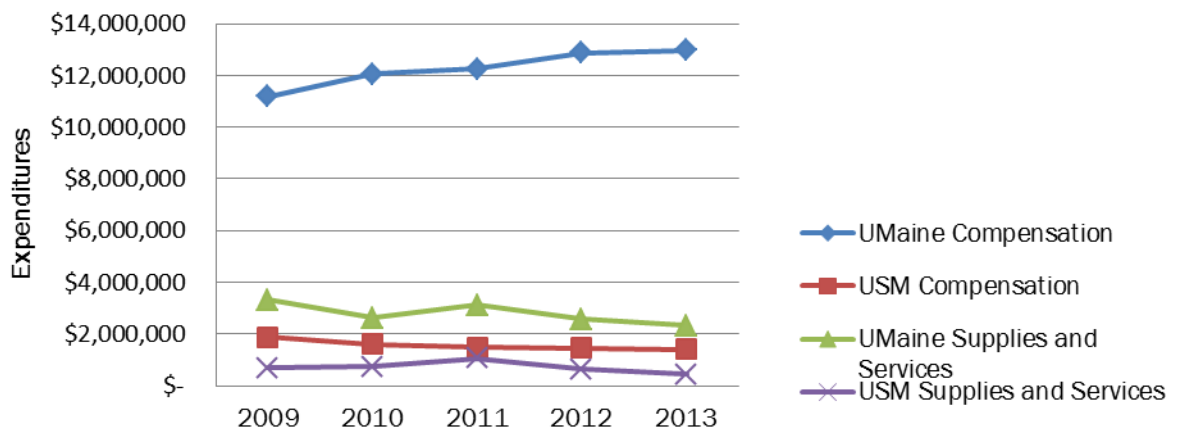
Expense Category	Total Expense FY09 to FY13
Compensation	\$69,308,481
Supplies and Services	\$17,935,202
Transfers & Construction	\$1,731,568
Student Aid	\$977,564
Business Travel	\$913,080
Total MEIF Expenditures	\$90,865,896

Compensation and Supplies and Services, the two largest expense categories, accounted for 96% of total MEIF expenses over the period. The trend in these two categories differs between UMaine and USM.

The trends in the two largest expense categories differ somewhat between UMaine and USM as shown in Figure 6. UMaine accounts for 88.5% of all MEIF expenses in the Compensation category and this category increased by 16% at UMaine over the five year period. In contrast, Compensation expenditures at USM, which comprise 11.3% of all Compensation expenditures, decreased 24.8% over the same period.

Supplies and Services expenditures have decreased almost 30% since 2009. Unlike changes in Compensation spending, this change was felt across both of the larger campuses at roughly the same level, with a 29.9% drop at UMaine and a 36.1% drop at USM.

**Figure 6. Compensation and Supplies and Services Category Expenditures By FY
UMaine and USM**



The Compensation category includes salaries, non-student and student wages, and employee benefits. Compensation expenses, by campus and subcategory of expense, are summarized in Table 5. Most of the growth in this category at UMaine has come from salaries and benefits, while those same subcategories account for most of the decrease in Compensation expenses at USM.

The subcategory student wages also presents a difference between the two campuses. At UMaine, student wages represent only 6.3% of Compensation expenses and decreased 7.4% over the period. Student wages at USM, however, represent 23.8% of Compensation spending and increased 73.9% over the same timeframe.

Table 5: Compensation Category Expenditures By Campus for Fiscal Years 2009 - 2013				
Compensation Category	Category Total FY09 - FY13	Category as % of Total	Net Change FY09 - FY13	% Change FY09 - FY13
University of Maine				
Salaries	\$37,031,719	60.4%	\$895,683	13.2%
Employee Benefits	\$18,763,698	30.6%	\$801,696	24.7%
Student Wages	\$3,893,921	6.3%	(\$68,545)	-7.4%
Non-Student Wages	\$1,665,233	2.7%	\$157,315	72.0%
UMaine Compensation Total	\$61,354,571	100.0%	\$1,786,149	16.0%
University of Southern Maine				
Salaries	\$3,915,747	50.2%	(\$427,428)	-38.2%
Employee Benefits	\$1,908,905	24.5%	(\$178,850)	-33.7%
Student Wages	\$1,860,739	23.8%	\$142,136	73.9%
Non-Student Wages	\$121,686	1.6%	\$527	1.9%
USM Compensation Total	\$7,807,077	100.0%	(\$463,614)	-24.8%
Small Campus Initiative (SCI)				
Salaries	\$75,585	51.5%	\$27,834	N/A
Employee Benefits	\$33,385	22.7%	\$14,046	8890.8%
Student Wages	\$28,670	19.5%	(\$875)	-13.8%
Non-Student Wages	\$9,193	6.3%	(\$1,703)	-89.5%
SCI Compensation Total	\$146,833	100.0%	\$39,301	467.6%
Grand Total	\$69,308,481	100.0%	\$1,361,836	10.4%
Source: OPEGA analysis of University of Maine System's MEIF expenditure data.				

The Supplies and Services category primarily includes non-employee services; supplies and materials; memberships, dues, and fees; equipment; rentals and leases; and utilities. Supplies and Services expenses, by campus and subcategory of expense, are summarized in Table 6.

From FY09 to FY13, UMaine had a significant decrease of approximately \$848,000 in the equipment expense category; this represents nearly all of the Supplies and Services net decrease experienced by UMaine over the period. Two other expense subcategories at UMaine had net changes over the period greater than \$200,000: Supplies and Materials (\$244,000 decrease) and Non-Employee Services (\$256,000

increase). At USM Supplies and Services decreased by \$245,000 over the five year period, mostly due to a net decrease of approximately \$205,000 in the category of Rentals and Leases.

Table 6. Supplies and Services Category Expenditures By Campus for Fiscal Years 2009 - 2013				
Supplies and Services Category	Category Total FY09 - FY13	Category as % of Total	Net Change FY09 - FY13	% Change FY09 - FY13
University of Maine				
Non-Employee Services	\$3,781,367	27.0%	\$256,816	47.6%
Supplies and Materials	\$3,159,278	22.6%	(\$244,536)	-34.4%
Equipment	\$2,627,477	18.8%	(\$848,371)	-75.9%
Utilities	\$974,858	7.0%	\$6,076	3.4%
Maintenance & Alterations	\$825,253	5.9%	\$2,000	1.3%
Library & Museum Acquisitions	\$820,927	5.9%	\$19,425	12.9%
Memberships, Dues, & Fees	\$702,096	5.0%	(\$65,655)	-43.6%
Rentals & Leases	\$393,103	2.8%	\$46,261	72.8%
Direct Cost Sharing	\$262,704	1.9%	(\$154,885)	-88.4%
Other	\$436,764	3.1%	(\$13,837)	-15.2%
University of Maine Total	\$13,983,826	100.0%	(\$996,708)	-29.9%
University of Southern Maine				
Supplies and Materials	\$922,129	26.0%	(\$48,623)	-32.6%
Non-Employee Services	\$572,234	16.1%	\$46,597	180.7%
Equipment	\$558,746	15.7%	(\$24,458)	-37.8%
Library & Museum Acquisitions	\$508,779	14.3%	\$12,078	12.9%
Maintenance & Alterations	\$377,807	10.6%	\$14,776	22.7%
Rentals & Leases	\$351,282	9.9%	(\$204,893)	-100.0%
Utilities	\$111,091	3.1%	(\$2,524)	-13.0%
Memberships, Dues, & Fees	\$76,207	2.1%	\$4,218	36.7%
Direct Cost Sharing	\$48,044	1.4%	(\$35,212)	-100.0%
Other	\$25,388	0.7%	(\$6,668)	-79.5%
University of Southern Maine Total	\$3,551,708	100.0%	(\$244,709)	-36.1%
Small Campus Initiative (SCI) and System Wide Services				
Supplies and Materials	\$257,093	64.3%	(\$1,652)	-4.3%
Equipment	\$101,829	25.5%	\$20,501	123.8%
Non-Employee Services	\$32,245	8.1%	\$16,957	565.2%
Utilities	\$4,186	1.0%	\$3,366	N/A
Maintenance & Alterations	\$2,029	0.5%	\$961	N/A
Memberships, Dues, & Fees	\$1,767	0.4%	(\$780)	-100.0%
Other	\$519	0.1%	\$0	N/A
SCI and System Wide Services Total	\$399,668	100.0%	\$39,352	67.1%
Grand Total	\$17,935,202	100.0%	(\$1,202,065)	-29.5%
Source: OPEGA analysis of University of Maine System's MEIF expenditure data.				

OPEGA also examined vendors paid with MEIF funds. We identified ten vendors that received payments in excess of \$200,000 over the five-year period. Considering the sectors and activities associated with MEIF, these vendors appeared appropriate.

Because compensation represents such a significant use of MEIF funds, OPEGA also analyzed these payments and researched the individuals paid the most with MEIF funds. Given their positions, the salaries appear reasonable.

MEIF Expenses are Subject to Standard UMS Purchasing Policies and Procedures

In examining how UMS processes MEIF expenses, OPEGA sought to identify any existing policies or procedures to ensure particular MEIF-funded expenses are consistent with statute. OPEGA noted that there are no specific policies or procedures to ensure MEIF expenses are consistent with statute and there are few restrictions on what type of expense MEIF may be used for as long as it is for a MEIF-funded activity and conforms to other University policies. Otherwise, MEIF expenses are processed no differently than any other expense and are subject to the same UMS purchasing policies and procedures. These policies and procedures, as well as the budget process itself, contain a few key controls, which are summarized below.

The budget process establishes a project in a targeted sector with budgeted line item amounts. Budgeted amounts are monitored to ensure line items are not overspent. Purchases of goods and services within these budget lines are primarily processed using MaineStreet Marketplace, UMS' eprocurement tool, which may require multiple approvals based on specialty factors, budget levels, and a requirement for approvals on all orders greater than \$50,000.

Other procurements are processed using purchasing cards that are subject to point of sale controls such as spending limits per transaction, spending limits per 30-day cycle, and purchases from approved Merchant Category Codes. Additionally, supervisors must approve all cardholder activity in a timely fashion. OPEGA noted a dramatic decrease in the use of purchasing cards. The use of purchasing cards for MEIF expenses decreased 78% over the five-year period from just over \$700,000 to \$152,000. MEIF funds used for expense reimbursements are subject to specific policies and procedures including supervisory approvals.

MEIF Expenses in the Five-Year Period Generally Appear Consistent with Statutory Purposes

Lastly, OPEGA attempted to determine the extent to which expense categories and types supported by MEIF appeared consistent with statute. Most MEIF expense categories or types met the initial threshold of occurring within one of the seven target sectors. For some expenses, it was not readily apparent, from the data OPEGA had, how they related to MEIF target sectors and statutory intent. However, the amounts were relatively small and we passed these on to UMS to research further. Otherwise, expense types appeared consistent with R&D, development of private enterprise, obtaining of matching funds and competitive grants, the protection of intellectual property, and workforce development.

Measures to ensure MEIF expenses are consistent with statute occur in the budgeting and project approval processes. There are few restrictions on what types of expenses MEIF may be used for as long as they are for an approved MEIF-funded activity and conform to other University policies.

Those policies do establish guidance and limitations on certain types of expenses. MEIF expenses are also subject to reviews and approvals that are part of the standard procurement and expense processes.

MEIF Results Inconsistently or Inaccurately Reported

Statute Requires Annual Reporting on Measurable Goals and Objectives

There are R&D goals for UMaine specifically and the State of Maine in general. However, neither UMaine nor USM have established, or report on, specific measurable goals and objectives for MEIF as required by statute.

The section of Maine Statute that establishes and governs MEIF requires that UMS' Board of Trustees provide an annual report to the Governor and the Legislature by January 1 of each regular session of the Legislature. Among the requirements for the annual report are a description of the fund's annual measurable goals and objectives and an assessment of achievements toward those goals and objectives. OPEGA reviewed the past five MEIF Annual Reports and found no mention or assessment of measurable goals and objectives. See Recommendation 1.

While there are R&D goals for UMaine specifically and the State of Maine in general (See Appendix D), neither UMaine nor USM have specific measurable goals and objectives for MEIF, although both campuses have Research Mission and/or Values statements. UMaine's Blue Sky Strategic Plan includes R&D goals for the University and there are statewide goals in the State of Maine Science and Technology Action Plan.

UMS has established goals and objectives for the Small Campus Initiative, which are to:

- generate measurable economic benefits for the State of Maine through financing high-impact innovation projects, with an emphasis on growing good quality technology jobs;
- encourage stronger linkages among Maine's research, development and commercialization organizations that will yield sustained gains in the future; and
- increase the level of economic activity in the State through nurturing technology development entities here in Maine, as well as attracting new activity from outside Maine.

UMS has established goals for the Small Campus Initiative but to date there has been no reporting on SCI projects in relation to those goals. Project status reports that address goals and objectives are now required beginning with projects funded in 2013.

At the time of OPEGA's review, there had been no reporting on SCI projects in relation to these goals and objectives. Beginning with projects funded in 2013, entities receiving SCI funding are now required to submit a report on the status of their projects that addresses the goals and objectives. This is a recent requirement so no reports had been submitted as of the time of this review. In addition, due to the timing of the SCI competition, distribution of the funds takes place in the middle of the academic year, but the projects do not begin until the summer, so reporting lags.

UMS Regularly Reports Three Metrics; Value of R&D Grants, Leverage Ratio and Positions Supported

The last five MEIF Annual Reports have regularly included reporting of three metrics associated with MEIF uses at UMaine and USM. OPEGA noted inaccuracies and/or inconsistencies in the calculation and reporting of these metrics.

Until the FY13 MEIF Annual Report, UMS staff organized and compiled the reports based on information provided by the individual campuses. Due to personnel changes in the System office, UMS staff compiled the financial data for the FY13 Annual Report. UMaine staff compiled the narrative and other outcomes reported by the campuses and formatted the report following the model previously used.

The format of the report changed somewhat over the five years reviewed, but the performance metrics reported most consistently were:

- total value of new R&D grants and contracts in the seven MEIF target areas;
- ratio of R&D grants and contracts leveraged by MEIF, and
- positions supported by MEIF.

While UMS reported on these three metrics most regularly in the Annual Reports OPEGA examined, they were not included in every report and were not calculated by each campus uniformly. In some year's reports, the metrics were reported by individual campus, and in others, the metrics were combined into a system wide total. OPEGA noted several issues regarding metrics reported in the Annual Reports. See Recommendation 2. All reports include a breakdown of funding by MEIF target area for USM and UMaine.

In the Annual Reports, both UMaine and USM report on the number of new R&D grants and contracts in MEIF target areas, whether they are directly leveraged by MEIF or not. UMaine and USM divide the dollar amount of all new R&D grants in MEIF target areas by the annual MEIF allocation to calculate the leverage ratio. OPEGA found the leverage ratio for R&D grants and MEIF reported in the most recent Annual Report was incorrect.

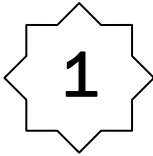
We also noted that USM and UMaine count positions supported differently. USM reports only the number of positions supported fully or partially by MEIF. UMaine reports on the number of positions supported by MEIF in any amount as well as those supported by grants and contracts reported as leveraged by MEIF. In addition, the number of positions supported was described differently in different sections of the most recent Annual Report.

In some Annual Reports, most recently FY13, UMaine also reports the number of Full Time Equivalent (FTE) positions supported by MEIF and all R&D grants and contracts reported as leveraged with MEIF funds. OPEGA's analysis of UMaine's FTE calculation indicate^{2s} that the FTEs they report as MEIF-supported are inaccurate.

The reported metrics have not included any data from the Small Campus Initiative.

No information pertaining to the three metrics was reported for SCI in the Annual Reports we reviewed. As noted previously, UMS has established goals and objectives for SCI and recently began requiring annual status reports. However, as of this review, no reports have been submitted. See Recommendation 2.

Recommendations



The University of Maine System Should Establish Measurable Goals and Objectives for MEIF and Report on Them as Statutorily Required

UMS has not established, nor annually reported on, measurable goals and objectives for MEIF as statutorily required. UMS is required by statute (10 M.R.S.A. ch. 107-C) to submit an annual report on MEIF to the Governor and Legislature that includes

“The annual measurable goals and objectives of the fund, as established by the board, and an assessment of the achievement of those goals and objectives. The goals and objectives must include, but may not be limited to, education, research and development.”

UMS established written goals for the Small Campus Initiative (SCI), but there are no related measurable objectives. The goals and any assessment of progress toward them have not been included in MEIF Annual Reports.

In 2012, the Legislature amended reporting requirements to include a summary of research and development projects funded via the SCI at the smaller campuses and Maine Maritime Academy and any external funding sources leveraged with those awards. The FY2013 Annual Report had no data on SCI awardees or any leveraged external funding. SCI awardees will start submitting project reports in 2014. However, some data that could be included in the Annual Report is already available as applications for projects awarded MEIF funding include each project’s target area, funding amount and any projected leveraging of external grants.

UMaine and USM do not have individual campus goals and measurable objectives for MEIF. The most recent Annual Reports provide a limited narrative describing metrics such as funds leveraged and positions supported (see Recommendation 2) and financial data, but there is no linkage of these metrics to any particular goals or objectives, or context as to how they reflect an assessment of achievements.

Without measurable goals, it is difficult to quantify achievement and demonstrate the success or needs of MEIF. Establishing and reporting on progress toward measurable goals and objectives, in addition to being statutorily required, would help legislators assess whether MEIF is being used effectively and understand the Fund’s impact over time at UMS, its campuses and statewide. This information would also help decision makers when considering MEIF appropriations.

Recommended Management Action:

UMS should work with UMaine, USM and the small campuses, including Maine Maritime Academy, to develop measurable goals and objectives and enhance reporting to meet the intent and requirements of statute.



The University of Maine System Should Ensure Metrics Reported for MEIF are Consistent, Complete, and Accurate

OPEGA found inaccuracies and inconsistencies in some of the metrics reported most frequently in the five years of MEIF Annual Reports we reviewed. Specifically we noted:

- Leverage ratios have been inconsistently reported in Annual Reports in terms of the time periods they applied to and leverage ratios reported in the most recent Annual Reports to the Legislature were incorrect;
- The number of positions supported were calculated differently by UMaine and USM, characterized differently in different sections of the Annual Reports, and where UMaine characterized the positions as "Full-Time Equivalents," calculated inaccurately; and
- SCI data for the three metrics are not included in the Annual Reports.

The average leverage ratio reported over the past five years of Annual Reports is approximately 4:1 and earlier Annual Reports describe the ratio as being calculated over a number of years. However, the Chancellor's cover letter for the two most recent reports describes the leverage ratio as being for those particular years and still reports the leverage ratio as 4:1. OPEGA calculated the actual leverage ratio as 2.5:1 and 3:1 in FY12 and FY13 respectively. UMS has now corrected this on the MEIF website.

UMaine and USM calculate the positions supported by MEIF differently. USM counts only those positions supported directly by MEIF. UMaine counts positions supported directly by MEIF and those supported with new R&D grants and contracts leveraged by MEIF. OPEGA has no opinion on which method is best, but calculating them differently makes reporting in a combined manner problematic.

MEIF Annual Reports and the MEIF website also characterize positions supported in different ways, some are accurate and some are not. In the FY2013 Annual Report, positions supported are referred to as "over" a certain number, "more" than a different number, and then specifically as 1,328 full-time equivalents (FTE).

OPEGA also found inaccuracies and inconsistencies in the data on MEIF supported employees at UMaine in the 2013 FTE calculation. For example, we identified employees who exceed one FTE, multiple entries that appear to be duplicates for the same employee that do not exceed one FTE but do inflate the count, and UMaine's list of MEIF supported positions did not completely match names in the FY2013 payroll expenses obtained from UMS by OPEGA.

Finally, MEIF Annual Reports to the Legislature combine UMaine and USM new R&D grants and contracts, and positions supported by MEIF, but similar data from the Small Campus Initiative are not included.

The Legislature must be confident it is receiving reliable information in order to make informed decisions. Without accurate information, it is difficult for UMS to demonstrate the value of MEIF to legislators and the public when seeking the continuance of the Fund or seeking additional funding.

Recommended Management Action:

UMS should consider what information is important to report to the Legislature that is consistent with and supplemental to Recommendation 1, and take steps to ensure that the information reported is accurate, complete and meaningful. This might include clarifying who is responsible for Annual Reports, coordinating data between campuses and improving how UMS tracks MEIF related information. See Recommendation 5.



The University of Maine System Should Complete the MEIF Task Force Report and Submit It to the Legislature

During the 125th Session, the Legislature established a Maine Economic Improvement Fund Task Force (P.L. 2011, ch. 698) to review the MEIF and “recommend any changes necessary to enhance investment in targeted research and development and product innovation and to provide basic investment necessary to obtain matching funds and competitive grants from private and federal sources.” To date, the Maine Economic Improvement Fund Task Force has not submitted the MEIF Task Force report as required by that Public Law.

The Task Force was to submit a report to the Joint Standing Committee on Labor, Commerce, Research and Economic Development no later than January 8, 2013. The legislation had also authorized the Committee to submit a bill regarding MEIF following its receipt and review of the report during the First Regular Session of the 126th Legislature.

UMS staff did not receive the list of appointed Task Force members until December 2012 and UMS staff told OPEGA the Task Force began meeting in early 2013. It was expected to complete its work in mid to late March 2013.

Duties of the Task Force were to:

- A. *Assess the extent to which past distributions from the fund resulted in the leveraging of external funds, the extent to which research that was funded resulted in long-term, direct applications to enhance the State’s economic or commercial capacity and the extent to which research that was funded resulted in advancing a program of successful partnerships and positive economic impact;*
- B. *Assess the competitive criteria currently used by the fund, review the targeted technologies identified in the Maine Revised Statutes, Title 5, chapter 407 for which funds may be used to perform university-based research and consider options for revising the criteria and targeted technologies to ensure a more equitable distribution of funds; and*
- C. *Examine the recent fund distributions among the recipients and assess whether revisions to the fund should be made to support the performance of increased research at the University of Maine at Augusta, the University of Maine at Farmington, the University of Maine at Fort Kent, the University of Maine at Machias and the University of Maine at Presque Isle and the performance of research at the Maine Maritime Academy.*

As the Maine Economic Improvement Fund Task Force did not submit its report, legislators did not have information they determined necessary to make decisions regarding MEIF during the 126th session and their perceptions of UMS and the MEIF may have been adversely impacted.

Recommended Management Action:

UMS should complete MEIF Task Force Report and submit to Legislature by October 1, 2014.



The University of Maine System Should Ensure MEIF Expenditures and Commitments at Each Campus Align with Available Resources

Annual Reports submitted to the Legislature show that UMaine has carried forward a net negative MEIF balance since 2011 that has increased from (\$624,322) in FY11 to (\$1,261,505) in FY13. Although USM has periodically reported a negative balance in individual MEIF target areas, it has not carried forward a negative overall balance. Rather, USM's net positive MEIF balance carried forward increased from \$1,060,648 in FY11 to \$1,495,850 in FY13.

These positive and negative balances reflect differences in the ways UMaine and USM decide to allocate MEIF to specific projects. Both UMaine and USM use MEIF for a combination of infrastructure/capacity support and specific projects, but the campuses take different approaches to project selection and committing MEIF for match that affects their respective net MEIF balances.

USM takes a conservative approach. At USM, once a researcher's request for cost share is approved, s/he submits an application to the identified external grant entity. If a proposal is awarded grant funds, all MEIF match committed for the full grant period, including multi-year projects, is set aside out of current year funds.

USM staff told us they try not to apply for more grants requiring match than can be supported by available MEIF dollars. One reason for taking this approach is uncertainty regarding whether MEIF allocations will continue in future years. Another is the ability to carry forward unspent MEIF, which enables USM to be more selective about funding only those projects or activities that best meet their criteria.

UMaine takes a more entrepreneurial approach trying to maximize external grant funding and leverage MEIF as much as possible. According to the Office of Research and Sponsored Programs (ORSP), the percentage of UMaine grant applications awarded varies and the actual amount awarded is often less than that applied for. ORSP reports a success rate of 50%; half the grants applied for will be awarded funds. Consequently, UMaine commits more MEIF for match on grant proposals than is expected to be available in any given year. If UMaine has a greater than 50% success rate in obtaining grants, then the over-commitment of available resources is compounded.

Other information gathered by OPEGA, and financial analyses performed, suggest that over-commitments of MEIF resources on grant proposals may be only one factor in the growing UMaine deficit balance. Some portion of the deficit may also be due to UMaine's budgeting and accounting practices with regard to match funds for grants and contracts and/or grant management practices generally. See Recommendation 5.

Ultimately, it is still unclear to OPEGA what combination of factors is responsible for the deficit balance shown in the MEIF Annual Reports, and to what degree this balance represents actual over expenditures of available resources versus accounting transfers that might be inflating the deficit balance. The new VPR at UMaine has indicated her office is working toward addressing this deficit.

While there is no balanced budget requirement in the governing MEIF statute, and balances negative and positive can be carried forward to the next year, ensuring expenditures are within available resources is a fundamental financial management practice. UMaine's approach to MEIF carries the risk of being reliant on anticipated future State appropriations. Future appropriations may be insufficient to cover the deficit and require the campus to use more E&G or other resources for past MEIF expenses. USM is more cautious, but does not fully utilize available resources.

Recommended Management Action:

UMaine should continue to review its current practices for budgeting, allocating, and expending MEIF, including those for committing MEIF resources for external grant cost share, to clearly identify the factors resulting in the growing deficit carry forward balance reported in the MEIF Annual Reports. UMaine should consider adjusting those practices to make the reasons for the deficit clear. To the degree the deficit balance represents actual over expenditures, or over commitment of available resources, UMaine should consider steps to manage the deficit so that it does not grow beyond a level of financial risk UMaine is willing to accept.

USM should review its current practices and competitive processes for allocating MEIF to identify opportunities to more fully utilize available MEIF resources in expanding institutional research capacity and encouraging submission of appropriate research project proposals.

5

The University of Maine System Should Enhance its Ability to Monitor and Report on MEIF Activities, Expenditures and Match Commitments by Linking Data with Primary Financial Systems

UMS' financial accounting system, PeopleSoft, has fields for program and project codes, which the campuses do not use consistently for all MEIF expenditures. UMaine and USM maintain separate databases to track external grant applications, grant awards, and reporting on grant-funded project activities to external funders including projects using MEIF as cost share.

Project code fields that would identify project-related expenditures from Fund 23 (MEIF) are not used and program code fields are not used for expenditures from Fund 24 (MEIF Match). As a result, it is not possible to use data from the accounting system alone to determine the number of active MEIF projects in any given year or track project specific expenditures for the duration of these projects.

Over time UMaine, and to a lesser extent, USM have increased the number of external R&D grants they apply for and receive. Consequently, their grant management and reporting functions have become more complex and labor intensive. Reports, such as annual MEIF reports, prepared using information from multiple sources have an increased risk of errors and require more time and staff resources to prepare.

Eliminating parallel processes and systems would enable UMS to prepare Annual Reports centrally, monitor MEIF activity consistently across campuses, and monitor specific projects. A grant management system integrated with the accounting system would reduce or eliminate the need to maintain information in separate databases, simplify reporting for external grantors and increase the accuracy of internal and external reporting generally.

Management at USM and UMaine responsible for R&D activities and grant administration told OPEGA they would benefit from an integrated grant management system. They said there are systems designed to meet the needs of research universities and noted that UMS' financial software has a grant module available. UMS purchased the module, but time and cost are obstacles to implementation so it has never been used. UMS told us that this is and has been on the "to do" list.

Recommended Management Action:

UMS should require all campuses to use existing program and project code fields in the UMS accounting system for all MEIF expenses. It should also assess its current and long-term needs with regard to the costs and benefits of a grant management system that is integrated with the accounting system and implement a system as appropriate based on that analysis.

Agency Response

In accordance with 3 M.R.S.A. §996, OPEGA provided the University of Maine System an opportunity to submit additional comments after reviewing the report draft. UMS' response letter and some additional context can be found at the end of this report. UMS is proposing to take the following actions in response to issues identified in this report.

1

The University of Maine System Should Establish Measurable Goals and Objectives for MEIF and Report on Them as Statutorily Required

The University of Maine System will develop specific MEIF goals and metrics derived from the UMS Goals and Actions and each campus' goals and metrics. These metrics will be established and approved by the UMS Board of Trustees by Q1 FY15 and be included in the FY14 MEIF Annual Report.

Outcomes reported in the previous MEIF reports vary by campus and activity. It is suitable to report these activities separately for each campus and to develop goals and metrics for each campus. Future MEIF reports will articulate this more clearly.

2

The University of Maine System Should Ensure Metrics Reported for MEIF are Consistent, Complete and Accurate

The MEIF Annual Report includes data tables and narrative descriptions as well as bullets and highlights. When summarizing data, references are sometimes editorialized as "more than..." or "averaging..." In future reports the UMS will specifically clarify and articulate these references.

Because outputs from each campus differ greatly and vary year-to-year and project-by-project, the report will now pay particular attention to these differences. Finally, as specific metrics are determined as dictated in Recommendation 1, the annual report will use both data and narrative to show quantitative and qualitative value as well as multi-year trends.

3

The University of Maine System Should Complete the MEIF Task Force Report and Submit It to the Legislature

The Maine Economic Improvement Fund Task Force will complete the Task Force Report and submit it to the Joint Standing Committee on Labor, Commerce, Research and Economic Development by October 1, 2014.

4

The University of Maine System Should Ensure MEIF Expenditures and Commitments at Each Campus Align with Available Resources

UMaine, USM and UMS-SCI have slightly different approaches to budgeting and transferring MEIF funds during a given fiscal year and across multiple fiscal years.

UMaine's entrepreneurial approach of committing funds to pending proposals has generally been successful in leveraging more grants and contracts than would have been awarded without this approach. The perception of a growing deficit should be minimized. The new VPR, Dr. Carol Kim is reviewing all policies and procedures related to budgeting and committing MEIF to future expenses and will propose a

plan that maximizes the opportunity to commit matching resources while reducing the perception of deficit spending to a minimum. UMaine will do this in concert with the UMS and any changes to the UMS general ledger and grant accounting modifications.

The University of Southern Maine will also adopt financial system monitoring protocols and tools and will adopt a more aggressive approach to committing MEIF funds on a fiscal year basis.

5

The University of Maine System Should Enhance its Ability to Monitor and Report on MEIF Activities, Expenditures and Match Commitments by Linking Data with Primary Financial Systems

The University of Maine System has formed a committee to review potential adjustments to the current general ledger system in order to improve tracking of and reporting on the use of MEIF monies. The committee, comprised of UMaine, USM, and System Office staff, represents the following functional areas:

- Budget
- Accounting
- Research - Administration of MEIF

The committee held its first meeting on June 11, 2014 and identified some potential changes to implement. These potential changes will be vetted with additional staff in the near future to determine what, if any, hurdles need to be overcome to implement the changes. If no hurdles are identified, UMS plans to begin implementing the changes July 1, 2014. The committee noted that implementation of some changes will need to be phased in as projects that span more than one fiscal year are already in progress and earlier accounting periods in the general ledger are closed to changes.

The University of Maine System recognizes the challenge of an integrated grants and contract-monitoring module with the Peoplesoft ERP system. The implementation of such a system is estimated to cost in excess of a million dollars. The University of Maine System Information Technology Services will scope a project for this effort and present to the University of Maine System in Q1, FY15 with possible prioritization within FY15 depending on budget and schedule.

Acknowledgements

OPEGA would like to thank the management and staff at the University of Maine System Office, University of Maine and University of Southern Maine for their cooperation during this review. We would also like to thank the Law and Legislative Reference Library staff for their assistance in providing information for this review.

Appendix A. Scope and Methods

The scope for this review, as approved by the Government Oversight Committee, consisted of several questions. To answer these questions fully, OPEGA:

- reviewed Maine Statute and legislative history of the Maine Economic Improvement Fund;
- reviewed UMS Board of Trustees Manual, UMS policies and procedures;
- reviewed MEIF Annual Reports 2009-2013;
- obtained, verified and analyzed a data file of MEIF expenditures for the period FY2009-2013;
- reviewed UMaine Blue Sky Plan, UMaine R&D Strategic Plan and State of Maine Science and Technology Action Plan;
- developed criteria for assessing consistency with statute;
- reviewed UMaine Proposal Approval Routing System;
- reviewed guidelines and criteria for the competitive processes at USM and for SCI;
- conducted interviews as needed with:
 - Chairman of the Board of Trustees and Chancellor of the University of Maine System's staff in Finance & Administration and Government & External Affairs
 - Managers and staff in the University of Maine's Office of the Vice President for Research, Office of Innovation and Economic Development and Office of Research and Sponsored Programs
 - Managers and staff in the University of Southern Maine's Office of Research Administration and Development

Appendix B. Small Campus Initiative Project Proposal Review Criteria

Category	Criteria
Scientific or Engineering Merit and Feasibility (25 points),	<ul style="list-style-type: none"> • Whether the science or engineering project: <ul style="list-style-type: none"> ❖ Represents excellence to the degree of being nationally competitive and will advance scientific or engineering knowledge; ❖ Will continue to attract outside (non-state) R&D funding; ❖ Will lead to other R&D important to Maine; ❖ Has the potential to lead to new services or commercialization within five-years and addresses an identified market need. • The feasibility of the strategies and approaches to meet project goals. • The impact of requested assets and their use in the project to stimulate scientific/technical innovation and quality, thereby creating economic opportunity in Maine.
Team and Institutional Merit and Commitment (25 points)	<ul style="list-style-type: none"> • Qualifications of project leaders, administration and staff to deliver and manage high quality projects and, based on the qualifications of the team and institution/entity(s), the likelihood that the project will meet its objectives. • Capabilities of the project leader(s) and team in the fiscal administration of the proposed land, facility, or equipment acquisition and improvements. • Quality of the applicant organization's innovation program and record and potential of productivity, including the degree to which the project is aligned with the applicant's organizational strategic plan. • Scientific and technical potential of the applicant organization's planned research, development and commercialization initiatives. • Level and feasibility of the applicant organization's planning and commitment to use the capital improvement(s) or major equipment. • Adequacy of existing equipment and facilities to support the project, and financial capacity to support the project for a period of 5 (five) years. • Whether the amount of funds requested is commensurate with the proposed capital improvements or assets. • Quality of matching funds as evidence of the applicant organization's commitment.
Relevance to Maine's Innovation Economy and Potential Impact Needs (25 points)	<ul style="list-style-type: none"> • Degree to which the proposed project identifies and serves research, development and commercialization needs and opportunities identified as a priority for the State of Maine. • Degree to which the project aligns with State science and technology plans. • Degree to which the project is a benefit to traditional industries and/or emerging technologies or applications of particular importance to Maine. • Degree to which the project has a positive impact on the growth, protection or sustainability of existing or emerging high-potential clusters or industries. • Degree to which the project builds on or complements previous investments in research, development, and/or commercial activity. • Potential impact of the proposed project to increase Maine's research and development and commercialization capacity. • Whether the requested equipment/facilities (if applicable) are already available within the State of Maine, and if so, why the asset is justified to build research, development and commercialization capacity. • Degree to which the project capitalizes on national research priorities.

Collaboration (25 points):	<ul style="list-style-type: none">• Whether the request will enhance collaboration among research institutions and commercial entities appropriate for the project proposed and promotes linkages between research, development and commercialization.• Potential to increase the use of resources available at the entity by individuals from other institutions or commercial entities.• Potential for the project to serve as a shared R&D and magnet for enhancing collaborative projects among research organizations and the private sector, especially meeting identified cluster needs.• Degree to which the project builds on or complements already-existing collaborative initiatives.• Provision of matching funds as evidence of collaborating institutions' commitment to the project.
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Appendix C. UMaine and USM MEIF Balances Carried Forward FY09-13

Data from MEIF Annual Reports 2009-2013					
<u>UMaine - Unused Funds Carried Forward</u>					
Target Sector	2009	2010	2011	2012	2013
Advanced Technology Forestry & Agriculture	\$ 374,039.00	\$ 372,588.00	\$ 319,503.00	\$ 168,972.00	\$ 437,383.00
Aquaculture & Marine Science	\$ (475,669.00)	\$ (1,268,066.00)	\$ (1,840,846.00)	\$ (2,542,300.00)	\$ (2,376,872.00)
Biotechnology	\$ 444,146.00	\$ 737,236.00	\$ 855,233.00	\$ 976,596.00	\$ 1,174,587.00
Composites	\$ 392,369.00	\$ 30,691.00	\$ 295,238.00	\$ 738,518.00	\$ 67,490.00
Environmental	\$ 389,908.00	\$ 661,740.00	\$ 304,961.00	\$ 485,425.00	\$ 706,881.00
Information Technology	\$ 173,813.00	\$ (14,335.00)	\$ (623,110.00)	\$ (902,019.00)	\$ (845,483.00)
Precision Manufacturing	\$ 2,911.00	\$ (1,668.00)	\$ 136,163.00	\$ 127,731.00	\$ 327,348.00
Cross Sector	\$ 195,827.00	\$ 47,119.00	\$ (71,464.00)	\$ (77,983.00)	\$ (208,362.00)
Unassigned - Reallocated by System					\$ (544,477.00)
UM Cost Sharing Funding 1	\$ 31,926.00	\$ 535.00			
Total	\$ 1,529,270.00	\$ 565,840.00	\$ (624,322.00)	\$ (1,025,060.00)	\$ (1,261,505.00)
1 Salary and Benefits from University					
<u>USM - Unused Funds Carried Forward</u>					
Target Sector	2009	2010	2011	2012	2013
Aquatic Systems	\$ (4,160)	\$ -	\$ 19,538	\$ -	\$ -
Biotechnology	\$ 179,299	\$ 539,451	\$ 853,438	\$ 1,200,044	\$ 683,429
Information Technology	\$ 132	\$ (1,109)	\$ 38,770	\$ 21,739	\$ (2,140)
Precision Manufacturing			\$ 148,902	\$ (1,677)	\$ -
Unassigned - reallocated by System					\$ 814,561
Total	\$ 175,271	\$ 538,342	\$ 1,060,648	\$ 1,220,106	\$ 1,495,850
<u>MEIF Unused Funds Carried Forward</u>					
	2009	2010	2011	2012	2013
UMaine	\$ 1,529,270	\$ 565,840	\$ (624,322)	\$ (1,025,060)	\$ (1,261,505)
USM	\$ 175,271	\$ 538,342	\$ 1,060,648	\$ 1,220,106	\$ 1,495,850

Appendix D. Maine's Research and Development Goals

GOAL	UMaine Blue Sky Plan	UMaine R&D Strategic Plan	State of ME Science and Technology Action Plan
Increase UMaine research expenditures from \$100 million in FY 2009 to \$125 million by 2017.	X	X	
Increase private foundation research funding from the FY 2010 level of \$750,000 to \$3 million by FY 2017.	X	X	
Grow UMaine intellectual property creation and increase royalty income ten-fold by 2017.	X		
Increase industry-funded research projects from \$4.5M to \$9.0M by FY 2017, including revenues and contracts from the Department of Industrial Cooperation and the Office of Research and Sponsored Programs, and gifts from the UMaine Office of Development and the University of Maine Foundation in support of research.	X	X	
Review current Indirect Cost Return (ICR) policies to "reinvest" in the research enterprise.	X		
Review impacts of ICR percent return to units through pilot studies.	X		
Increase the number of externally funded graduate students from the FY 2010 level of 800 to 1,600 by FY 2017.		X	
Increase the number of externally funded undergraduate students from the FY 2010 level of 350 to 700 by FY 2017.		X	
Increase national and international recognition of the quality of UMaine's research programs and associated faculty, including placement among the top 100 research institutions nationwide by FY 2017 as measured by The Top American Research Universities.		X	
Research capacity: Maine's total R&D activity will reach \$1.4 billion by 2015, 3 percent of gross state product, up from \$524 million in 2005 and \$148 million in 1997.			X
Employment: Maine's innovation-intensive sectors will increase their aggregate employment by 5,400 to 60,000 by 2015. These sectors had employment of 67,073 in 2000 and 54,232 in 2008.			X
Per capita income: Maine's per capita income will increase to \$42,000 by 2015, up from \$33,962 in 2007 and \$22,179 in 1997.			X
Sources: UMaine Blue Sky Plan 2012 UMaine R&D Strategic Plan, January 2012 2010 State of Maine Science and Technology Action Plan			



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University of
Southern Maine

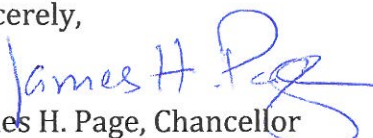
Dear Beth:

On behalf of the University of Maine System, I would like to thank you and the full OPEGA staff for the very professional review of the Maine Economic Improvement Fund over the last several months. We greatly appreciated the opportunity to talk about the benefits of the Maine Economic Improvement Fund (MEIF), we hope you found our responsiveness helpful.

As we have discussed with your office and is reflected in our response, we are in general agreement with the recommendations included in your report and have already begun the task of implementing several of the suggestions. We are also pleased that you found that the procedures currently in place for ensuring MEIF funded projects are consistent with the fund's governing statute.

We are grateful for the effort, courtesy and professionalism that you and your staff exhibited throughout this review. Please contact me directly if you have any questions or concerns.

Sincerely,


James H. Page, Chancellor
University of Maine System

University of Maine System – Response to Report and Recommendations

The University of Maine System is composed of three types of campuses. The University of Maine, established as the State Land Grant institution in 1865, is classified by the Carnegie Foundation for the Advancement of Teaching as *RU/H: Research Universities (high research activity)* and has maintained an integrated teaching, research and public service mission and has a well established R&D program including the faculty, facilities and R&D management with the research responsibilities necessary to regularly accomplish R&D and economic development in the seven sectors as well as other areas. This includes organized research units often directly related to one of the seven sectors such as the Advanced Structures and Composites Center (ASCC) and the Forest Bioproducts Research Institute (FBRI) as examples. Many research projects are large, interdisciplinary and involve Maine partners including public and private sector. The University of Maine has specific Research and Economic Development Goals and Metrics that are established in the ***“University of Maine Strategic Implementation Plan for Enhancement of Research, Scholarship, and Creative Activity” 2012-2017*** and the University of Maine 5 year strategic plan ***“The Blue Sky Project: Reaffirming Public Education at Maine’s Flagship University (2012-2017)”***, will contribute to the UMS Board of Trustees’ Mission Category II-Research and Economic Development Strategic Outcomes (UMS draft 05-22-14). The specific goals and metrics from these plans were highlighted on pages 24-25 of this OPEGA report.

The University of Southern Maine (USM) should not be compared to the University of Maine (UMaine) in the context of its research capacity. USM is classified by the Carnegie Foundation for the Advancement of Teaching as Master’s L: Master’s Colleges and Universities (larger programs). As such USM’s volume of research will not rise to the level of UMaine’s but its research capacity and volume will be commensurate with the level required to meet its obligation to improve research, teaching and student learning in the context of addressing community workforce and economic development needs. The University of Southern Maine began to grow its R&D programs in the 1990’s and has growing R&D faculty, facilities and research management capabilities and duties to support and grow R&D. To this end, USM, through its MEIF program, will contribute to the Board of Trustees’ Mission Category II-Research and Economic Development Strategic Outcomes

The smaller campuses including the University of Maine at Augusta, the University of Maine at Farmington, the University of Maine at Fort Kent, the University of Maine at Machias and the University of Maine at Presque Isle are primarily undergraduate research intuitions. They lack the faculty, facilities, and R&D management to be considered an R&D institution. However, some individual faculty at these institutions do perform R&D and are supported on a case by case basis. Each campus may have individual goals and metrics. Goals and

metrics established for the MEIF Small Campus Initiative are listed on page 25 of the OPEGA report.

Legislative History

The Maine Economic Improvement Fund, created by the Maine Legislature in the late 1996, was initiated through a collaboration between then Senate President Mark Lawrence and the “Faculty Five”, senior researchers at the University of Maine, who demonstrated that Maine could increase the number and dollar value of federal grants (i.e. NSF, DoD, USDA, DOE, etc) that could be awarded to Maine if there were more state dollars available to leverage those grants. Increased federal R&D funding can be used to build R&D capacity, support research staff and students, increase opportunities to work with the private sector and solve problems, and create new innovations to support the Maine Economy. The model was similar to more economically secure states and was targeted to improving Maine’s rank in R&D from 51st in the nation. The MEIF initiative evolved through the formation of the Joint Select Committee on R&D in the 118th Legislature which had very broad legislative support (including Senate President Rick Bennett) and support from the Administration of Governor Angus King. The reports of the 118th JSC on R&D and the evaluation by the Director of the State Planning Office Evan Richart called for a series of investments in R&D which included goals of growing the MEIF to a recommended level of \$20 million per year, created the Maine Technology Institute, supported funding for the Biomedical and Marine sectors, created technology-based business incubation as well as several other programs.

At the time of its establishment the University of Maine System made the decisions to fund the University of Maine and the University of Southern Maine as the primary R&D institutions based on their existing capacity and core infrastructure and the ability to compete for Federal funds at the national level. Each institution operates their R&D activities as part of an integrated program and each institution uses other fund sources in addition to MEIF to support R&D efforts. Research and Development is not a stand-alone activity. While the Maine Economic Improvement Fund provides critical and very important resources to these efforts, MEIF alone is not enough to support R&D without the leveraging of external resources. Leveraging external resources is the primary driver to the growth and success of R&D in Maine and was the primary impetus to creating the Maine economic Improvement Fund.

As stated previously, each institution has established R&D goals through campus-based strategic plans including R&D strategic plans. In addition the University of Maine System has established outcomes for research and economic development goals and actions. As each campus manages their R&D functions separately, the Annual MEIF report includes a

highlights section for each campus and reports output from the annual MEIF activity. The reported activity differs for each campus and varies year by year.

The Small Campus Initiative was established by UMS in practice in 2009 and further established by state statute in 2012, and requires the UMS to set aside a fixed percentage of the MIEF annual appropriation to support researchers at the 5 smaller UMS campuses. In 2013 an amendment to that statute included the Maine Maritime Academy to be an eligible “small campus”. Results of these small campus investments are reported individually.

The growth and expansion of Research and Economic Development from the University of Maine System has only happened through this critical investment. The following are specific responses to the recommendations outlined in the OPEGA report.

Recommendation 1: UMS Should Establish Measurable Goals and Objectives for MEIF and Report on Them as Statutorily Required

The OPEGA report has identified the need for MEIF specific goals and metrics. The University of Maine System will develop specific MEIF goals and metrics that will be derived from the UMS Goals and Actions and each campuses goals and metrics. These metrics will be established and approved by the UMS BOT by Q1 FY15 and be included in the FY14 MEIF Annual Report.

Outcomes reported in the previous MEIF reports vary by campus and activity. It is suitable to report these activities separately for each campus and to develop goals and metrics for each campus. Future MEIF reports will articulate this more clearly. The OPEGA report notes only three metrics reported. In addition the MEIF Annual report typically includes the following outcomes:

- Number of proposals submitted and awarded
- Number of company projects
- Grant funded major equipment purchases
- Grant funded student support
- Number of patents files and awarded
- Number/Names of Companies involved in UMS business incubators

The University of Maine System has seen significant growth in its R&D activity since the creation of MEIF. Perhaps most important is since MEIF’s inception the University of Maine System, using MEIF as match, has leveraged substantial federal funds, including those to create and expand Organized Research Units that are now recognized as leaders in their fields and centers of excellence for working with Maine and National problems, Maine companies, entrepreneurs and students. The centers, which did not exist prior to MEIF include:

- The Advanced Structures and Composites Center
- The Aquaculture Research Institute and the Center for Cooperative Aquaculture Research

- The Forest Bioproducts Research Institute and the Process Development Center
- The Advanced Manufacturing Center
- The Advanced Computing Group (supercomputing)
- Inter Media Research and Commercialization Center
- The Target Technology Incubator
- Foster Innovation Center
- The Graduate School of Biomedical Sciences and Engineering
- Virtual Environment and Multimodal Interaction (VEMI) Laboratory
- Maine Cybersecurity Center
- Wise Lab of Environmental and Genetic Toxicology

In addition the University of Maine has seen significant growth in the School of Marine Sciences which was formed in 1996, growth in the agriculture and forestry sector through the Maine Agriculture and Forestry Experiment Station and growth in the College of Engineering.

This growth results in the increased demand for MEIF resources at the University of Maine. To remain competitive and continue to grow, the University of Maine chooses to fund R&D activities through additional sources.

Recommendation 2: UMS Should Ensure Metrics Reported for MEIF are Consistent, Complete, and Accurate

The OPEGA Report points out differences in reports year to year and also inconsistencies in data reporting. The MEIF Annual Report includes data tables and narrative descriptions as well as bullets and highlights. In summarizing data, references are sometimes editorialized as “more than...” or “averaging...”. In future reports the UMS will make sure that these reference are clarified and articulated more specifically.

However, the outputs from each campus differ greatly and will vary year-to-year and project-by-project. The report will now pay particular attention to the differences.

Finally as specific metrics are determined as dictated in recommendation 1, the annual report will address both data and narrative to show quantitative and qualitative value as well as multi-year trends.

Recommendation 3: UMS Should Complete the MEIF Task Force Report and Submit It to the Legislature -

The Maine Economic Improvement Fund Task Force will complete the Task Force Report and submit it to the Legislature Labor Commerce Research and Economic Development Committee by October 1, 2014.

The Taskforce, established by statute was appointed by the Legislative Leadership late. The Task Force met over the course of January to May of 2013. One critical policy recommendation was the inclusion of Maine Maritime Academy as an MEIF eligible “Small Campus”. This resulted in legislation that was approved and amended the MEIF statute to include MMA. MMA was included in the FY14 round of SCI MEIF grants and received their first award in the fall of 2014.

Recommendation 4: The University of Maine System Should Ensure MEIF Expenditures and Commitments at Each Campus Align with Available Resources

As noted in the OPEGA report UMaine, USM and UMS-SCI have slightly different approaches to budgeting and transferring MEIF funds during a given fiscal year and across multiple fiscal years. UMaine’s entrepreneurial approach of committing funds to pending proposals has generally been successful in leveraging more grants and contracts than would have been without this approach. In addition UMaine’s approach to use non-MEIF funds to support this research and development is consistent with the Land Grant mission of teaching research and service. However the perception of a growing deficit should be minimized. As a new VPR, Dr. Carol Kim is reviewing all policies and procedures around the budgeting and commitment of MEIF to future expenses and will propose a plan that maximizes the opportunity to commitment matching resources while reducing the perception of deficit spending to a minimum. This will be done in concert with the UMS and any changes to the UMS general ledger and grant accounting modifications.

The demand for the Maine Economic Improvement Fund exceeds the current appropriation. The buying power of the annual amount decreases due to inflation each year. UMaine’s commitment of resources to offset the inflation is prudent to keep the MEIF activity at its targeted levels, and to meet the R&D goals established by UMaine, UMS and the State of Maine.

The University of Southern Maine will also adopt financial system monitoring protocol and tools and will adopt a more aggressive approach to committing MEIF funds on a fiscal year basis.

Recommendation 5: The University of Maine System Should Enhance its Ability to Monitor and Report on MEIF Activities, Expenditures and Match Commitments by Linking Data with Primary Financial Systems.

The University of Maine System has formed a committee to review potential adjustments to the current general ledger system in order to improve tracking of and reporting on the use of MEIF monies. The committee is comprised of staff from UMaine, USM, and the System Office and represents the following functional areas:

- Budget
- Accounting
- Research - Administration of MEIF

The committee held its first meeting on June 11, 2014 and has identified some potential changes to implement. These potential changes will be vetted with additional staff in the near future to determine what, if any, hurdles need to be overcome to implement the changes. If no hurdles are identified, we plan to begin implementing the changes July 1, 2014. The committee identified that implementation of some changes will need to be phased in as projects that span more than one fiscal year are already in progress and earlier accounting periods in the general ledger are closed to changes.

The University of Maine System recognizes the challenge of an integrated grants and contract monitoring modules with the Peoplesoft ERP system. The implementation of such a system is estimated to cost in excess of a million dollars. The University of Maine System Information Technology Services will scope a project for this effort and present to the University of Maine System in Q1, FY15 with possible prioritization within FY15 depending on budget and schedule.