WRITTEN TESTIMONY OF
ALBERT G. HORVATH
SENIOR VICE PRESIDENT FOR FINANCE & BUSINESS/TREASURER
THE PENNSYLVANIA STATE UNIVERSITY

HEARING ON THE STATE OF RESEARCH INFRASTRUCTURE AT U.S. UNIVERSITIES

BEFORE THE
SUBCOMMITTEE ON RESEARCH AND SCIENCE EDUCATION
COMMITTEE ON SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES
FEBRUARY 23, 2010

Chairman Lipinski, Ranking Member Ehlers, and other distinguished Members of the subcommittee on Research and Science Education, thank you for allowing me to participate in this hearing on a topic that is very important to those of us who manage the financial and administrative aspects of organized research at major research universities.

My testimony is provided on behalf of the Pennsylvania State University, where I am Senior Vice President for Finance and Business/Treasurer, and representing the Council on Governmental Relations, or COGR, where I currently serve in the role of Chairman of the Board of Directors. COGR is an association major research universities (and affiliated academic medical centers and research institutes) that helps to develop policies and practices that fairly reflect the mutual interests and separate obligations of federal agencies and universities in research and graduate education.

Background and Context

As a chief financial officer of a major research institution, fiscal oversight of the research enterprise is an important and challenging aspect of my responsibilities. Research activities account for almost 19% of Penn State's operating budget, trailing only instruction and patient care in scale. The percentage of total revenues generated by research could be much more significant at other universities, depending on their mix of various mission-driven activities. Research is a complex activity which requires dedicated facilities, specialized equipment,

significant physical infrastructure, substantial administrative support, and a number of specific compliance processes.

While research is central to our universities' missions, keeping the research enterprise solvent, and keeping our finances solid, has become a greater challenge. Since the early 1990's, universities have faced tighter regulation with respect to funded research, with more limitations on our ability to effectively and reasonably recover those costs. A COGR paper in 2004 entitled "A New Research Business Model-Incentivizing Universities" (Attachment B) stated:

"Six examples describe the impact of current regulations, all of which provide short-term cost savings to the federal government, at the risk of long-term damage to the research enterprise. The regulations impose:

- *Limits on legitimate cost recovery by agency or type of award,*
- *A cap on administrative cost recovery in a time of growing administrative and regulatory requirements,*
- *Lack of commitment to life cycle costs for capital projects and the requirement to invest capital recoveries,*
- *An artificial distinction between internal and external interest costs on borrowed funds,*
- *The exclusions of many universities from receiving adequate utility cost reimbursement,*
- *Conflicting and duplicative requirements among funding agencies."*

Universities have had to subsidize the physical and administrative infrastructures supporting research with revenues generally provided by State governments (public universities) or private philanthropy (private universities). Following the economic challenges of the past 18 months, both of those funding sources have become seriously constrained.

Additionally, the infrastructure necessary to enable cutting edge research is complex and expensive. Universities have made significant investments in such infrastructure—buildings,

major equipment, utility systems, organizational changes and processes—with long-term financial commitments based upon an expectation that research funding would continue over the term of amortization. Regulated funding restrictions and budget uncertainty conspire to create tremendous financial risk and anxiety over the ability to fund the debt that has been incurred. It also dampens the willingness to make new investments in the future.

A summary of Penn State's research funding/activity can be found in Attachment A.

How research infrastructure is financed at Penn State

The University's overall capital plan is financed through a variety of sources. The current multi-year plan, which runs through June 30, 2013, anticipates a total of $820 million of projects that will be financed as follows:

Financing Source	4 year total (millions)
Institutional Borrowing	$450
Annual State funding @ $40M per year	$160
Internal reserves	$130
Gifts/fundraising	$70
Special State allocations	$10
TOTAL	$820

Major research facility projects—renovations or new construction—are generally enabled through the issuance of tax-exempt bonds. This long term obligation (20- 30 year repayment) is repaid using unrestricted revenue sources, including a portion of recovered facility and administrative costs (F&A) on sponsored awards. The Commonwealth of Pennsylvania, in addition to its annual $40 million commitment of capital funding, sometimes provides special allocations for such facilities, but these commitments historically amount to a modest fraction of total construction cost.

Penn State has a strong credit rating (AA by Standard & Poors, Aa2 by Moody's Investor Services) and has been successful at obtaining favorable interest rates for its tax exempt bond

issuances. This access to "reasonably priced" funding has enabled the University, along with many other research institutions, to invest in its facilities and infrastructure particularly as endowments grew and balance sheets strengthened. Encouraged by the commitment to research funding, particularly through NIH during the 1990's, research facilities were expanded or renovated to enable the cutting edge work implied by such Federal investments. However, a few critical changes have caused uncertainty and anxiety around the sustainability of these expensive and complex assets.

1. Once the doubling of the NIH budget was achieved, subsequent years' budgets began to erode some of that growth. While there was no assumption that such extraordinary growth would continue forever, allowing some of that growth to recede was not expected. This has caused uncertainty in planning for the future and put pressure on universities' ability to service its external debt as had been planned.
2. The severe economic downturn, which hit higher education beginning late in 2008, has significantly reduced endowment values and constrained future borrowing potential. The ability to continue to reinvest in research at past levels will be difficult if not impossible, given that those facilities must compete for priority against all other activities of comprehensive universities (classrooms, student support facilities, libraries, student housing and the like). While markets and endowments have somewhat recovered, it will take some time and sustained improvement for values to return to what they were previously.
3. Other sources of possible funding for research facilities—private philanthropy and state investments—have fallen considerably because of the effects of the economic downturn.

The events noted above have dampened the ability of research universities to invest in all facilities, including those supporting research. The specific impact at Penn State has been a delay in our ability to move ahead with our five year capital plan as originally drafted. Projects generally have not been cancelled, but many have been delayed by generally 12-18 months. Also, our borrowing plans, although historically conservative, have become even more so as we monitor the activity of the capital markets and move cautiously with new debt.

As an example of the process followed and the issues encountered with the planning and execution of a major research facility is Penn State's Millennium Sciences Complex. This 175 thousand square foot research facility will house faculty conducting research in material science and the life sciences. The building is intended to encourage collaboration between these two disciplines and will include many of Penn State's most pre-eminent research faculty. The building is projected to cost $215 million and is scheduled for completion in 2011. The Commonwealth has provided $82 million of funding (the majority of which was a Penn State allocation of its annual capital allocation); the $133 million balance is financed with bonds issued in 2009. The interest expense associated with this project is calculated to be $63.8 million over the life of the bonds. Sponsored research funding generated by faculty in this facility will provide partial repayment of the interest costs of the related borrowing through recovery of F&A costs.

Penn State has approximately 1.6 million square feet of space dedicated to research at its University Park campus, with expressed needs for up to another 500 thousand square feet just to support the present research portfolio. There are over $32 million of identified research equipment needs. Over $475 million of deferred maintenance exists in its research buildings, based upon facility condition audits conducted across the campus. Other research needs/initiatives could be addressed with additional facilities that don't currently exist. Clearly, this is a big challenge as these needs must compete for access to funding against other institution priorities (including the Penn State Hershey Medical Center, which also competes for this investment capital and supports a significant research enterprise).

Academic Research Infrastructure Program (ARI)

The inclusion of additional funding for the ARI as part of the American Recovery and Reinvestment Act was most welcome in the research community. While the total amount allocated to funding for renovation and renewal of existing facilities, this was a positive step toward helping research universities to address a critical issue—deferred maintenance and aging facilities. Without a regular stream of funding toward such buildings and equipment,

they become obsolete. Many labs exist in buildings built 30 or more years ago. Building systems did not contemplate the requirements of modern day science and engineering research. Often the most difficult part of recruiting new research faculty is the extent to which facilities need to be upgraded or renewed in order to support the research program of the faculty member. Such upgrade can run into the hundreds of thousands or millions of dollars.

Both Penn State and COGR would encourage the Congress to consider extension of the ARI in future years to assist in dealing with the challenge of maintaining facility viability. It will help in generating positive economic activity as well.

The trade-off between increases in direct research funding versus more money in the ARI or other infrastructure support programs is a difficult one. ARI has been most welcome and beneficial. However, a strong, consistent stream of funding for the primary research supporting agencies is also critical. This basic research funding provides the support for labs, research technicians, graduate students, support personnel, as well as funding toward supporting infrastructure. We hope that consideration of accomplishing both of these goals—steady strong research funding and some form of ARI—could be goals that are achievable together and not at each other's expense. Additionally, we would encourage establishment of a larger fund for such projects. As noted earlier in my testimony, the needs for such funding are large and compelling. The ability to fund a larger number and wider range of projects would be extremely effective in maintain facility capability.

Other ideas to provide support for research infrastructure needs

We would encourage the consideration of additional investments by the Federal government to help support the infrastructure that supports research at universities. Such investments will help to ensure that the continued cultivation of the basic science as the fundamental foundation of innovation and progress envisioned by Vannevar Bush several decades ago. Also, the economic benefit that such research provides is demonstrable. However, recognizing the realities of difficult budget choices, I offer some other ideas for ways in

which the Federal government can more effectively support research on campuses and reduce some of the growing burdens that this activity places on University finances.

- *Predictable, long term research financing*—By far, the most important element toward reducing risk as universities make substantial financial commitments to research, spanning several years, would be a reliable stream of direct research revenue. As budgets are prepared and business plans developed, a major assumption in the evaluation of a project is the reliability of revenues that will be available to repay debt incurred. If a long term commitment to predictable growth in major funding agencies budgets for extramural research, it would help to provide confidence that the research such facilities are designed to support will, in fact, be able to financially support them over a 20-30 year period.

- *Federal programs to assist in financing research infrastructure*—The Federal government could provide mechanisms to help reduce cost of major investments or the risk of long term decisions. Such programs/systems would help to incentivize new investments in an era following balance sheet declines. The economic benefit of such investments has both a short run component (the activity stimulated during the construction phase) and a long run component (addition of higher paying knowledge jobs).

- Provide support for research capital investments
  - Pool of capital dedicated to support investments in research buildings, building renovations, computing infrastructures
    - Explore the possibility that a pool of dedicated capital could be made available to research universities with very favorable repayment terms. These funds would be accessed by institutions, according to specific criteria (types of facilities/uses) to finance new facilities and would be repaid at subsidized interest rates. This pool then would be self-sustaining over time and could help to ease some of the tough choices universities face on how to invest its limited capital.
  - Debt service subsidies for university-issued bonds
    - Provide subsidies for payment of debt service on borrowing undertaken by research universities for new facilities, major renovations or major equipment purchases that benefit Federal sponsors.
- Provide "grants" to fund a portion of new facilities, major building renovations or capital equipment acquisitions. This would serve to reduce the overall amount needed from bond issues or other external borrowings, thus reducing the impact on an institution's credit rating/debt capacity issues.

- *Allow recovery for the cost of internal capital, which is permitted for commercial contractors*
  - There are a number of differences between the cost accounting rules that exist for commercial and non-profit recipients of Federal funds. One notable example is the inability for universities to recover the "cost" of internal funds (reserves) that are used to finance research assets. Changing OMB Circular A-21 to allow such costs to be recovered would help to incent perhaps a greater commitment of institutional reserves into such projects. This cost would become a component of the institution's F&A rate, which is audited and approved by its cognizant Federal agency.

- *Consider elimination of the administrative cost cap in OMB Circular A-21*
    - While not directly related to "bricks and mortar," the cap that was placed upon administrative cost recovery by universities almost 20 years ago continues to create burdens on institutions. Most of the major research institutions have calculated administrative cost components which exceed the 26% cap, resulting in millions of dollars worth of legitimate research support expenses that go unreimbursed. No other type of contractor performing work for the Federal government is subject to such a cap on supportable, allocable support costs. Since implementation of the cap, several new requirements and regulations have been enacted that require greater effort by universities; however, none of the incremental costs associated with the regulatory changes are recoverable (if the institution is over the administrative rate cap).
    - If removal of the administrative cost cap is not considered feasible, then consideration of the creation of a new, uncapped pool for regulatory compliance costs should be considered. As mentioned above, the growth of new requirements, seemingly every few weeks, has placed financial pressure on universities which other non-research revenues must subsidize. Universities WANT to be compliant, and often the regulations are complex, requiring new investments or additional staff. This is not a signal of inefficiency but recognition of the cost of being compliant. A listing of new compliance requirements implemented since imposition of the administrative cost cap was compiled by COGR in March 2009, and demonstrates this point effectively (Attachment C).

- *Require all Federal agencies to reimburse universities at Government-approved F&A rate*—A study by the Rand Corporation in 2000 estimated that universities are subsidizing Federally sponsored research by roughly $0.7 billion and $1.5 billion that would be eligible for reimbursement through negotiated/approved F&A rates if all sponsors were paying the approved rate. We would support changes in appropriate regulation that would require Federal sponsors to pay the negotiated Federal rate on all research it funds.

Conclusion

The research partnership between the Federal government and US research universities has enabled great achievements in science, innovations that have fueled economic growth, and helped our system of higher education to become the envy of the world. It is recognized that financial issues for both partners are more complex than ever before. Infrastructure—in the form of buildings, equipment, computing networks, and other necessary support ingredients—allow this research to flourish and discoveries to be made. We must jointly commit to ensure that this infrastructure is maintained, nurtured and permitted to evolve along with the research that it supports. As discussed in the 2003
COGR paper "*New Research Paradigms Call for Regulatory Change*:" (Attachment D)

"The essential premise for a new business relationship between the government and universities is the simple acknowledgment that both parties engage as "business partners". This means, among other things, a recognition of complementary interests in the cost effective administration of awards and the providing of adequate funds to meet the joint expectations for the outcomes of research."

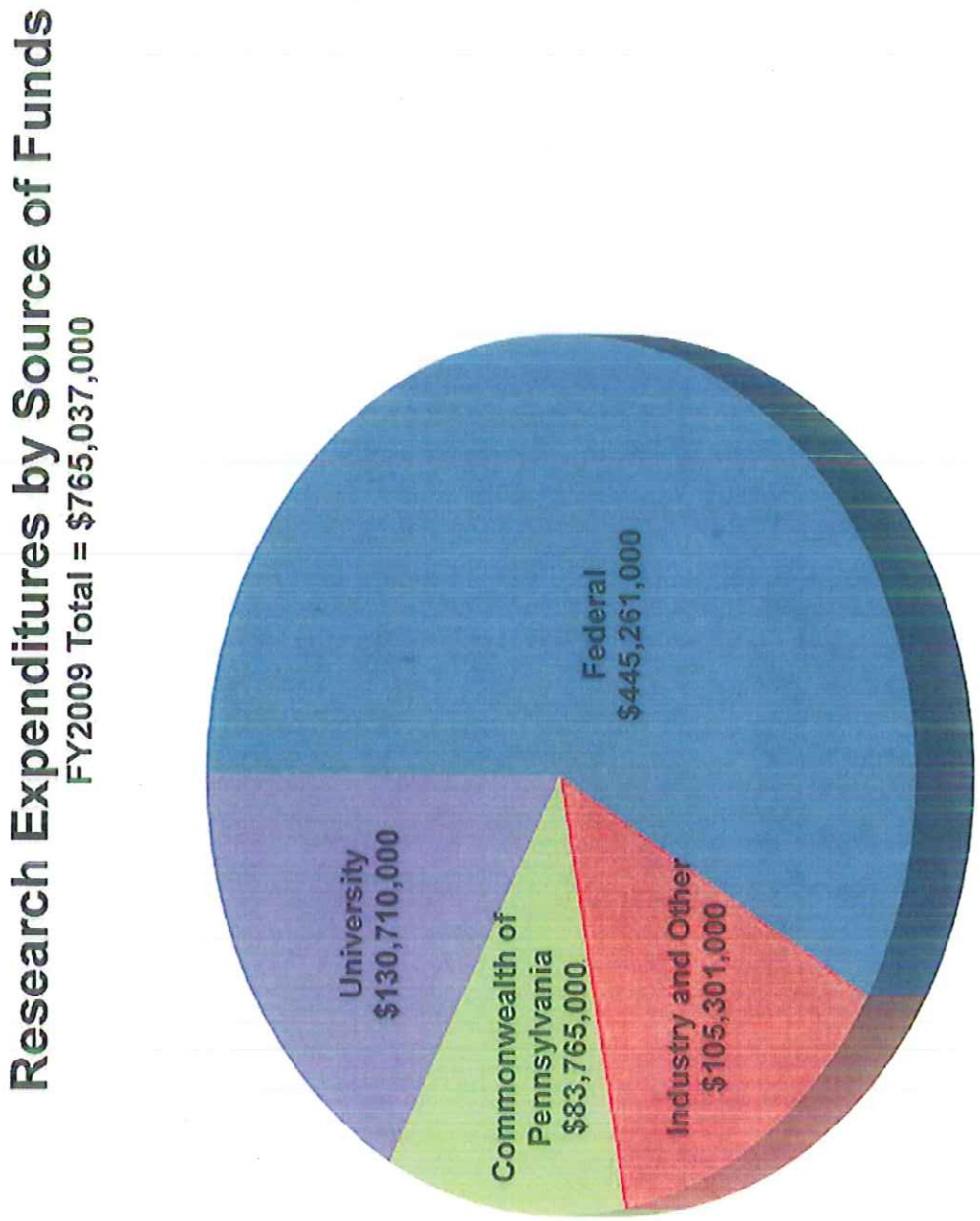
Steady, predictable streams of research funding form the foundation for the science and technology discoveries that result. A commitment by the Federal government to such funding will help to make future investments in facilities and support by universities less risky projects. Additionally, the continuation of programs like the Academic Research Infrastructure Program, NSF's Major Research Instrumentation program, among others will assist in the development of new facilities along with ensuring the viability of existing facilities. Finally, changes to policies that will enable full and reasonable recovery of costs associated with research will help to ease pressure that caps and other funding reductions have created.

I greatly appreciate the opportunity you have provided to present this information.

ATTACHMENT A

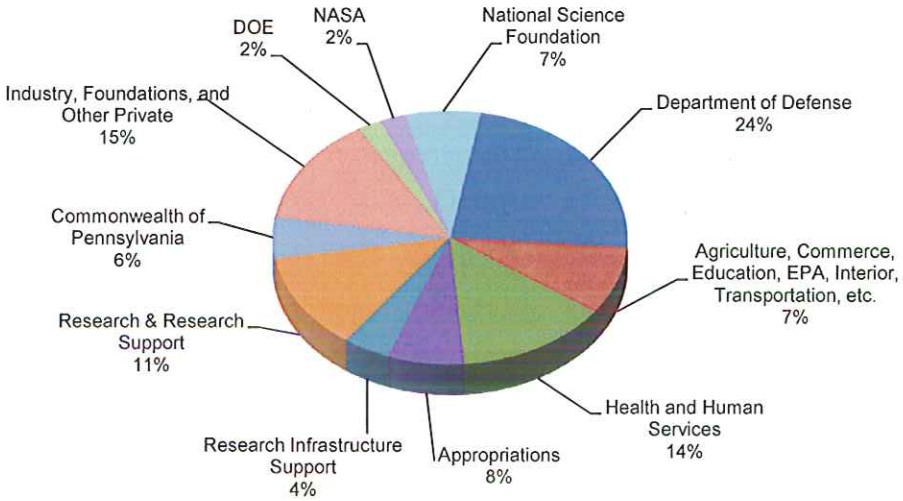
Summary of Sponsored Research Activity

Penn State University



EXPENDITURES ON ORGANIZED RESEARCH

by Source for Fiscal Year 2008-2009

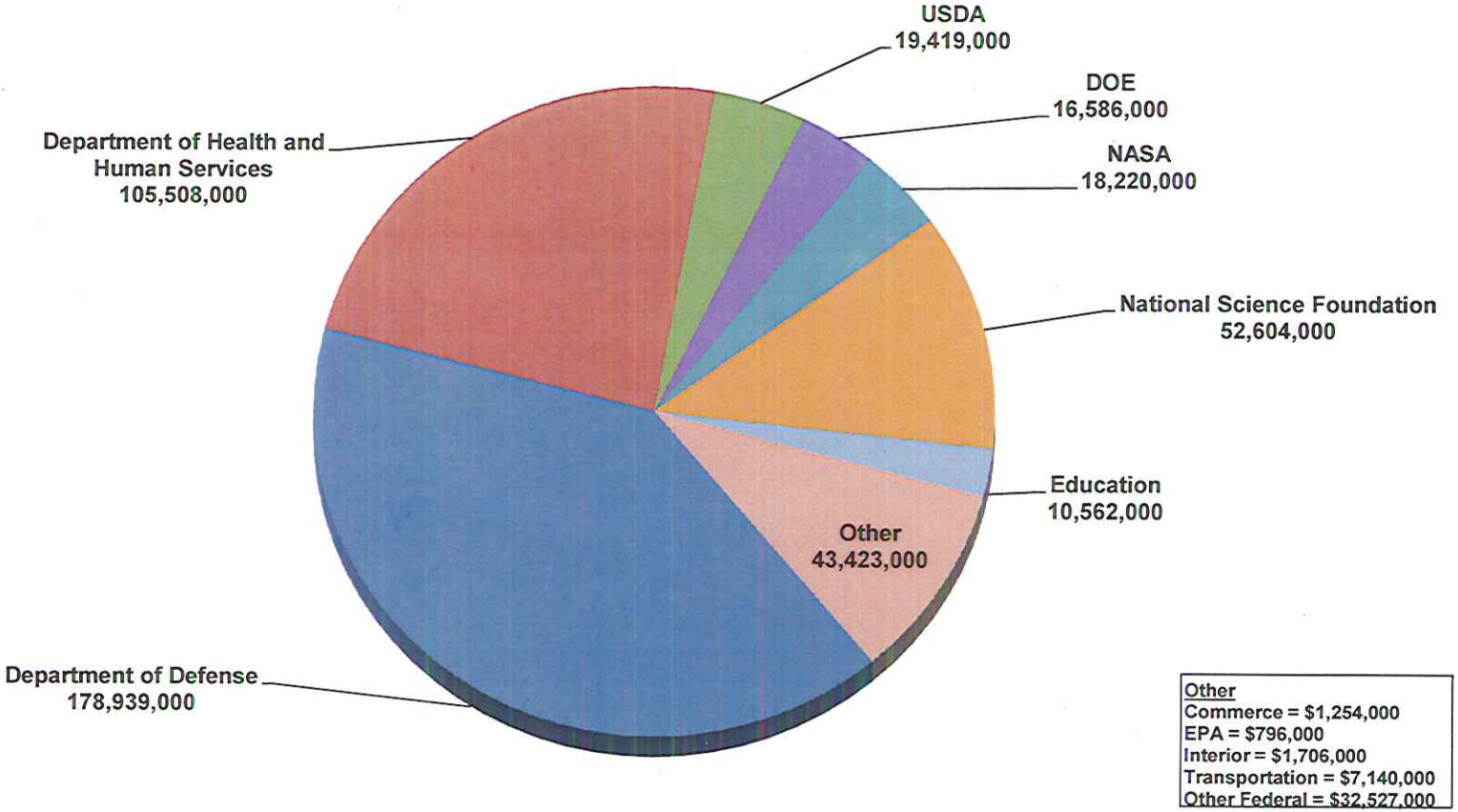


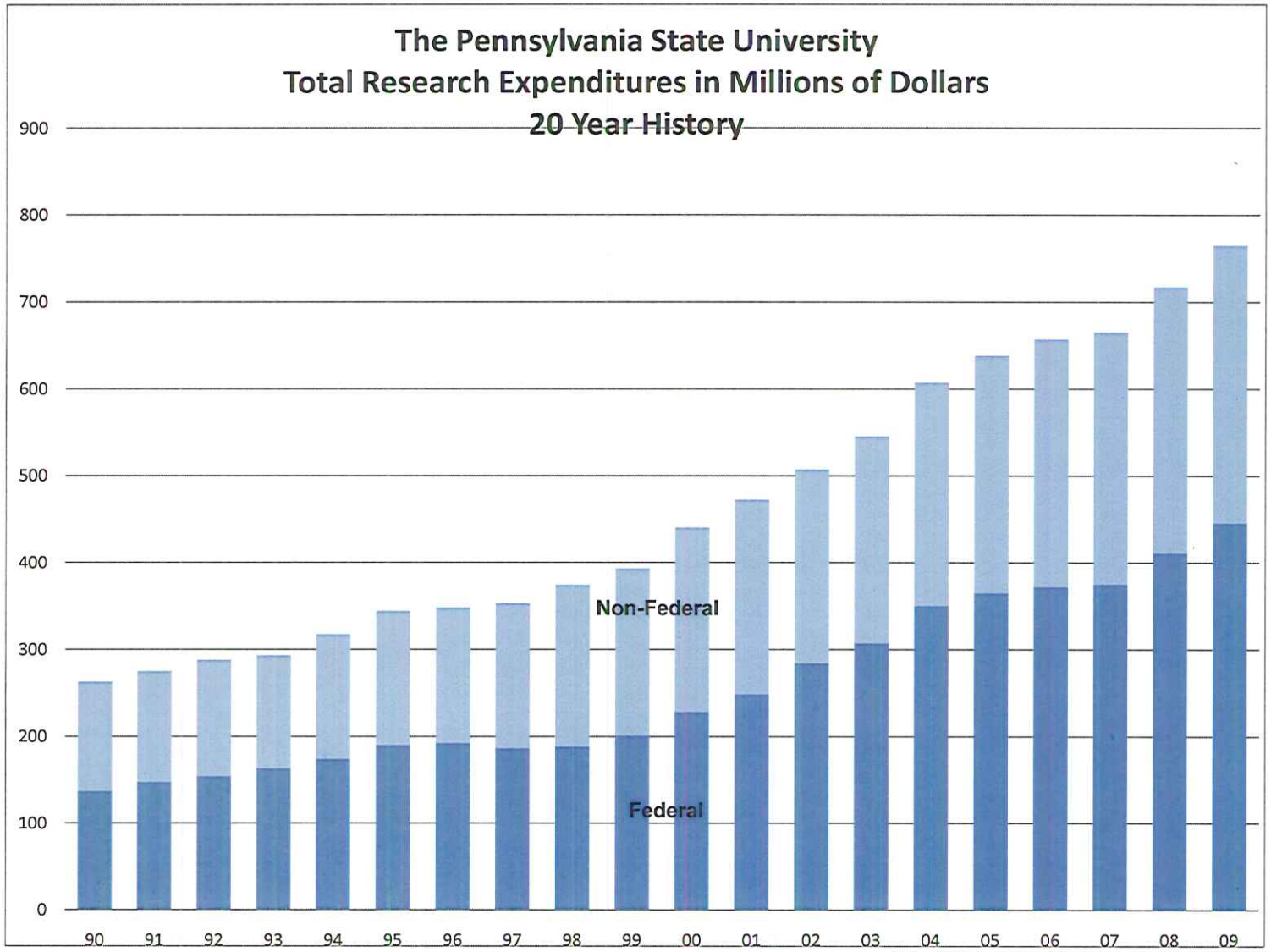
	SOURCE OF FUNDS		AMOUNT THIS YEAR		AMOUNT LAST YEAR
Sponsored Grants & Contracts	Department of Agriculture	$	12,807,000	$	11,768,000
	Department of Commerce	$	1,254,000	$	1,470,000
	Department of Defense				
	Department of Air Force	$	6,683,000	$	7,706,000
	Department of Army	$	27,755,000	$	29,793,000
	Department of Navy	$	141,836,000	$	128,510,000
	U. S. Marine Corps	$	2,665,000	$	4,830,000
	Department of Education	$	10,562,000	$	9,605,000
	Department of Energy	$	16,586,000	$	14,618,000
	Department of Health & Human Services	$	105,508,000	$	98,189,000
	Department of the Interior	$	1,706,000	$	1,203,000
	Department of Transportation	$	7,140,000	$	5,909,000
	Environmental Protection Agency	$	796,000	$	669,000
	National Aeronautics & Space Administration	$	18,220,000	$	15,267,000
	National Science Foundation	$	52,604,000	$	53,400,000
	Other Federal Agencies	$	32,527,000	$	20,338,000
	Subtotal Federal	$	438,649,000	$	403,275,000
	Commonwealth of Pennsylvania	$	40,150,000	$	42,597,000
	Subtotal Government	$	478,799,000	$	445,872,000
	Penn College	$	1,622,000	$	1,617,000
	Industry and Private	$	103,679,000	$	104,803,000
	Subtotal Non-Government	$	105,301,000	$	106,420,000
	Total Sponsored Grants & Contracts	**$**	**584,100,000**	**$**	**552,292,000**
Federal Appropriations	Agricultural Research	$	6,612,000	$	8,169,000
	Total Federal Appropriations	**$**	**6,612,000**	**$**	**8,169,000**
State Appropriations	Organized Research (Est.)	$	19,557,000	$	20,498,000
	Agricultural Research	$	24,058,000	$	25,595,000
	Total State Research Appropriations	**$**	**43,615,000**	**$**	**46,093,000**
	Total External Funds	**$**	**634,327,000**	**$**	**606,554,000**
	Internal Research and Support	$	97,987,000	$	79,401,000
	Research Infrastructure Support	$	32,723,000	$	31,289,000
University Funds	**Total University Funds**	**$**	**130,710,000**	**$**	**110,690,000**
	GRAND TOTAL	**$**	**765,037,000**	**$**	**717,244,000**

Senior Vice President for Research, Dean of the Graduate School
October 2009

Research Expenditures from Federal Agencies

FY2009 Total = $445,261,000




The Pennsylvania State University
Total Research Expenditures in Millions of Dollars
20 Year History
900
800
700
600
500
400
300
200
100
0
Non-Federal
Federal
90
91
92
93
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ATTACHMENT B

COUNCIL ON GOVERNMENTAL RELATIONS

1200 New York Avenue, N.W., Suite 320, Washington D.C. 20005

(202)289-6655/(202)289-6698(FAX)

March 24, 2004

A New Research Business Model: Incentivizing Universities

Introduction

This paper illustrates some of the difficult choices that universities face in order to comply with the current cost policy restrictions of the federal government as expressed by federal agencies and by OMB. Many of these policies were imposed for the purpose of saving taxpayer dollars, while at the same time providing maximum support for research. The paper illustrates that these measures are not the best way to reach the stated goals. Instead of imposing restrictions, we propose that the government look to a new business model. We maintain that it would be preferable to offer incentives to allow the academic community to manage the increasingly rare research finds on terms comparable to those granted to any experienced, cost-conscious and competitive provider of research.

Six examples describe the impact of current regulations, all of which provide short-term cost savings to the federal government, at the risk of long-term damage to the research enterprise. The regulations impose:

Limits on legitimate cost recovery by agency or type of award,
A cap on administrative cost recovery in a time of growing administrative requirements,
Lack of commitment to life cycle costs for capital projects and the requirement to invest capital recoveries,
An artificial distinction between internal and external interest costs on borrowed funds,
The exclusions of many universities from receiving adequate utility cost reimbursement,
Conflicting and duplicative requirements among funding agencies.

Taken either in isolation or as a short-term mandate, any one of these restrictions may seem immaterial, but their cumulative impact is acutely felt in the higher education community. The costs to the federal government are not as immediately evident but nonetheless real. They may be financial, they sometimes represent lost opportunities, i.e. loss of research capacity or they inadvertently encourage less than optimal research decisions. The impact would be no different and as strongly resisted, if these regulations were imposed on any other business entity.

It is true that the government's current costing polices do not deprive universities of the freedom to make choices, but the choices have become increasingly narrow and at times dysfunctional. It should be evident that universities can best serve the nation if they are free to make their best intellectual judgment about the future direction of research. Universities have historically accepted the risk that today's research focus is likely to change tomorrow, if new discoveries redirect the progress of science or if the federal government changes its priorities. The risk, however, is much greater today, because artificial limits and prescriptions have been injected into

the basic compliance structure that is the foundation of government research support policy. Cumulatively these prescriptions create financial disincentives that impact program choices and may encourage decisions that are neither in the best interest of taxpayers' nor consistent with government goals and policies in supporting university research.

Situation 1: Limits on legitimate cost recovery by agency or type of award

A tenured professor retires and her 30-year-old laboratory must be renovated to accommodate a new faculty member. In deciding how to allocate the new space, the university has to weigh the risk that a junior faculty's primary research support may come in the form of awards that do not pay the full, negotiated facilities and administrative (F&A) rate. An example is the NIH career development program, under which F&A recovery is limited to 8%. In establishing this program the government has demonstrated its resolve to support young investigators, recognizing that the nation needs a steady stream of accomplished researchers. However, the government's failure to provide the requisite support costs diminishes the impact of the program. Alternately, a more senior faculty member, whose cutting-edge research is so novel that federal funding has yet to be secured, might claim the newly renovated space. But for how long can the university afford to cost share the F&A costs for his laboratory?

The financial realities of setting up a recent hire to the faculty are large and are real. Renovating space, equipping and running a modern research lab, and providing seed money for new research requires as many institutional resources (research proposal assistance, utilities, administrative support) as providing research space for a more senior colleague. It may turn out that the space is given to an established investigator operating in a mature branch of her field, where F&A costs are provided. Financial considerations, of course, may not be the final determining factor in academic decisions. Nevertheless, from a strictly "business" perspective, the choice favors the more senior appointment in "safe" and well-funded research areas.

These situations illustrate how academic and financial arguments create difficult trade-offs when important strategic research decisions are made. Some universities have decided to recognize faculty, who are successful grantees and who bring in the full negotiated F&A rate, by awarding them the best research space in newly-renovated buildings. Other universities might consider prioritizing the renovation of buildings that will house successful grant applicants, at the expense of other disciplines that are not as likely to be "funding winners." Without sufficient revenues to support total costs, both direct **and indirect,** the need quickly arises to subsidize research activity from other sources (primarily from tuition or gifts from private donors).

These cases illustrate how financial disincentives may lead to results that are neither in the best interest of the taxpayers nor consistent with government goals and policies in support of university research.

Situation 2: A cap on administrative cost recovery in a time of growing compliance requirements

The university determines that changes to its oversight requirements for bio-medical research must be substantially enhanced due to much stricter regulation by the federal government. Such enhancements will require the institution to incur additional costs in the hundreds of thousands or even millions of dollars, all directly supportive of research primarily sponsored by federal agencies. Some are the result of new regulations, others are the result of changes in federal

interpretation of compliance needs in research areas that develop commensurate with the advance of scientific methods. However, due to the fact that the institution's negotiated F&A rate is already at the 26% administrative cost cap, the government does not provide its fair share of these new compliance costs.

In order to continue the relevant research and to comply with federal regulations, the administrative costs supporting such research must be subsidized by other revenue sources, possibly tuition revenue or private donations or increasingly shrinking state funds. Compliance with these federal mandates is not a matter of choice and "efficiencies" cannot be easily achieved. If no revenue sources are left and if additional subsidies to the research enterprise can no longer be found, the research-intensive universities face even more difficult choices. Their options are reduced to gradual elimination of certain research programs or the even more problematic decision of reducing compliance standards to the required minimum level.

Situation 3: Decreasing pool of investment capital for universities to invest in research facilities

The university determines that a research building dating from the 1930s has outlived its usefulness and that it would be most cost-effective to raze the building and to build all new space. However, the common source of funding in the past-tax-exempt bond funding-is now in shorter supply. With the economic downturn of the past few years, the institution's endowment value has declined, thus reducing the level of borrowing capacity available. While the institution has extensive borrowing ability, a significant additional borrowing will likely push its credit rating down a level, thus creating more expensive interest costs. Capital campaigns, although desirable, can only be initiated slowly and have unpredictable outcomes. These realities could force the university to defer a decision, with the result that the building in question will deteriorate further and that current or future research will be negatively impacted.

The federal government has for years failed to include a well-funded facilities support program in the federal agency research program budget. The unfortunate consequence of this has been the increase of earmarks in Congressional appropriations. Also, to date there exists no federal policy that commits the government to participate in its share of debt service over the life of the loan. It would make good business sense to provide incentives, since the research to be performed in these facilities is in the government's interest. A variety of incentives have been proposed and could include a reasonable facilities funding program placed in the federal budget, offering universities a federal sharing in loans, or a federal loan guarantee program. The common denominator in all these would be removing the uncertainty that universities currently experience under the given federal policy.

Business decisions for the university are further complicated by the federal government's requirement that for every dollar of depreciation recovered on the new building, a dollar must be spent on some future project. This means in effect that the university will never recover the cost of its investment, and may be committed to new construction at times when it is not in a sound financial position to do so.

Situation 4: An artificial distinction between internal and external interest costs on borrowed funds

The university's bond rating is in jeopardy due to depressed financial markets. Because of this, it would be less expensive on a gross basis to allocate internal capital funds to pay for a new science building. However, the university knows that there is no option for recovery from the government of the university's internal cost of capital. Under these circumstances, the university may make a rational business decision to borrow at a higher external rate because it then can recover a fraction of the interest costs from the federal government, thereby lowering its net cost of interest.

It would clearly be in the taxpayers' interest to provide incentives for the university to use its own money, possibly by sharing some of the investment costs, so that the federal contribution does not go to defraying avoidable higher interest costs.

Situation 5: The exclusion of certain universities from receiving the utility cost adjustment factor

A space vacancy occurs in the cancer research center. The university could make the space available for a number of equally worthy projects. One of them is a large laboratory where the research project requires constant air changes. Unfortunately such a laboratory would entail high energy use. Since the university had not undertaken an energy study prior to 1996, it is now prevented from receiving higher compensation through the F&A rate for higher energy research consumption. When the government put new energy studies on hold in 1996, it promised to develop a fair formula for all academic energy consumers, but has yet failed to do so. As a result, more than one hundred universities are now prevented from recovering the costs for higher energy use which they consume, which they could easily document, and which their peers who had done prior energy studies now enjoy.

For the university faced with this choice, the uncompensated energy costs inject an artificial economic factor into a determination which should be based solely on academic and scientific needs. This may influence the university to make a decision not in the best interests of science.

Situation 6: Regulatory Burden Reinforces Bureaucracy

Universities, like commercial businesses, seek to maximize the use of financial and human resources to meet their strategic objectives. As resources become more constrained, institutions attempt to streamline their efforts, including the maximum use of available technology, to reallocate resources into priority areas. But research universities find it increasingly difficult to reduce the administrative burden of research in order to fund more strategic activities. The following three examples illustrate how federal requirements contribute to high administrative costs, and thereby detract from effective decision-making.

- Each federal agency views itself as unique, operating within its own set of administrative guidelines and regulations. This requires counterpart experts at the university to effectively deal with the day-to-day operations of each respective agency funding.

- New initiatives in the government's administrative processes, such as electronic research administration, have not been coordinated across sponsoring agencies in a way that establishes common standards to assist universities in implementing simple, cost effective solutions. As a result, the same task (i.e., submission of a research proposal) must be accomplished in a variety of different ways.
- Costing regulations became more burdensome and complex in the 1990's, including the requirement to develop and adhere to Cost Accounting Standards Board protocols that are expensive to implement and maintain but often ignored by the cognizant agencies. Significant time and effort that could have been used elsewhere was expended to develop the Disclosure Statements, and continues to be devoted to maintaining them as changes are required to business processes.

A specific example of how such administrative requirements negatively impact the drive towards efficiency is one university's attempt to create a new staff classification for "research faculty. " The sole motivation for this change is to build and strengthen the university's research capability. In order to create the new position, the institution needs to have a cost recovery model that enables all leave costs to be charged directly to grants and contracts. This requires changes to the written disclosure statement that must be negotiated through the cognizant agency, even though costing practices were recently reviewed in negotiation of the F&A rate. Such requirements delay the implementation process in a way that is difficult to explain to faculty administrators and counter to the shared desire for increased efficiency.

Conclusion:

These examples illustrate the dangers to the research enterprise when sound business decisions can no longer be reconciled with what appear to be sound research decisions. Unless the government changes some of its policies, it may trigger outcomes that are adverse to its own stated goals: to foster an environment in which the government's academic business partner is empowered to manage itself and the federal investment in research in the most pendent and cost effective manner. For each of the examples cited in this paper, there exist a number of possible policy solutions. Some are very specific, such as extending the utility cost adjustment factor, and allowing "cost of money" for universities that use their own capital for facilities. Others have broader implications, such as eliminating the administrative cap, or establishing loan guarantee programs for new facilities. Still others would only require adherence to government-stated purposes and principles, such as payment of negotiated F&A rates on all federal awards, and streamlining financial and research administration requirements to eliminate unnecessary processes and to create consistency among sponsoring agencies.

The unique position of universities precludes their being treated as business partners in the same sense as commercial business partners. According to the latest information from NSF, university funds to support research reached $6.55 billion in 2001, or 20% of total expenditures. As recently as 15 years ago the university share of total expenditures was 10%. Stated differently, for every $1 million of funding received in new awards, a university provides an additional $200,000 of direct and infrastructure costs. This significant investment of funds demonstrates the universities' commitment to support research. Recognizing this, universities must and do take every opportunity to maximize administrative efficiency and reduce costs. However, we believe a comprehensive strategy is needed to address the

growing imbalance in support for the university research infrastructure. The government will justifiably expect to get the best results from federally funded research on the most reasonable terms, and with the expectation of cost sharing. But where the government fails to recognize the universities' legitimate business constraints, and the result is increased research cost shifting, it is time for new research business models, which recognize these constraints and design funding programs consistent with them.

ATTACHMENT C

COUNCIL ON GOVERNMENTAL RELATIONS

1200 New York Avenue, N.W., Suite 750, Washington, D.C. 20005

(202) 289-6655/(202) 289-6698 (FAX)

Federal Regulatory Changes, Since 1991

These regulations directly affect the conduct and management of research under Federal grants and contracts. The list of current regulations is in chronological order.

Federal Policy for the Protection of **Human Subjects (Common Rule**, 1991)

Nonindigenous **Aquatic Nuisance Prevention & Control** Act of 1990(Implemented, 1992)

NIH Guidelines for Research Involving **Recombinant DNA** Molecules (1994)

Deemed Exports (1994, EAR & ITAR)

- **DFARS Interim Export Control** Compliance Clauses (July 2008)

Conflict of Interest

- Public Health Service/NIH Objectivity in Research (1995)
- NSF Financial Disclosure Policy (1995)

Lobbying Disclosure Act of 1995

Cost Accounting Standards **(CAS)** in OMB Circular A-21(1995)

Health Insurance Portability & Accountability Act of 1996 (**HIPAA**) Privacy Rule

OMB Elimination of **Utility Cost Adjustment** (UCA) (1998)

Data Access **/Shelby Amendment** (FY 1999 Omnibus Appropriations Act); related amendments to OMB Circular A-110

Policy on Sharing of **Biomedical Research Resources** (NIH, 1999)

Misconduct in Science (Federalwide Policy, 2000)

- NEH, 2001
- NSF, 2002
- EPA, (Directive, 2003)
- Labor, 2004
- HHS/PHS, 2005

NASA, 2005

Energy, 2005

Veterans Affairs, 2005

Education, 2005

Transportation, 2005

USDA (Proposed, 2008)

HHS Centers for Medicare and Medicaid Services **(CMS) National Coverage Determination for Routine Clinical Trials** (Clinical Trials Policy), 2000

Executive Order 13224, Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten to Commit or Support Terrorism (September 2001, also EO 12947, 1995)

Select Agents & Toxins (under CDC and USDA/APHIS) Public Health Security & Bioterrorism Preparedness & Response Act of 2002; companion to the USA PATRIOT Act (2001)

FISMA Federal Information Security Management Act (Title III, E Government Act of 2002) OMB Circular A-130, Management of Federal Information Resources, Appendix III, **Security of Federal Automated Information Systems**

CIPSEA Confidential Information Protection and Statistical Efficiency Act (OMB Implementation Guidance 2007, Title V, E Government Act of 2002)

Federal Policy on Embryonic **Stem Cell** Research (2003)

Data Sharing Policy (NIH, 2003)

Homeland Security Presidential Directive **(HSPD) – 12**, Common Identification Standards for Federal Employees and Contractors (2004)

Higher Education Act, Section 117 **Reporting of Foreign Gifts, Contracts and Relationships** (20 USC 1011f, 2004)

Model Organism Sharing Policy (NIH, 2004)

Constitution & Citizenship Day (2005, Consolidated Appropriations Act FY 2005)

Genomic Inventions Best Practices (2005)

Combating **Trafficking** in Persons (2008)

Code of Business Ethics & **Conduct** (FAR) 2008

Homeland Security Chemical Facilities Anti-Terrorism Standards (**CFATS**) 2008

E-Verify 2008

Military Recruiting and ROTC Program Access (2008, Solomon Amendment, National Defense Authorization Act for FY 2005)

Nuclear Regulatory Commission Order Imposing **Fingerprinting and Criminal History Records Check** Requirements for Unescorted Access to Certain Radioactive Materials (Feb 2008, Section 652, Energy Policy Act of 2005)

National Institutes of Health **Public Access Policy** (2008, Consolidated Appropriations Act of 2008, Division G, Title II Section 218)

Certification of Filing and Payment of Federal Taxes (Labor, HHS, Education and Related Agencies Appropriations Act of 2008, Division G, Title V, Section 523)

Health and Human Services/FDA **Clinical Trials Registry**

Implementation/Interpretation Changes, Since 1991

Foreign Nationals (See COGR/AAU/FDP Troublesome Clause Report, 2008[1])

Publication Restrictions (see COGR/AAU/FDP Troublesome Clauses, 2008)

PL 106-107/Grants.gov: Electronic Applications, Financial Reporting, Progress Reports, iEdison Invention Reporting, etc.

CCR/DUNS Registry requirements

Subrecipient Monitoring (OMB Circular A-133, Compliance Supplement)

Changes to A-21 **F&A Proposal Format**

Federal Policy for the Protection of Human Subjects:

Federalwide Assurance (2004), mandatory training

IRB Registration (2008)

Title IX of Education Amendments of 1972: Access to science and math educational programs (2007+)

EPA **Hazardous Waste**, Subpart K (2008)

IRS **990 Reporting**

[1] The Report is available at: www.cogr.edu/docs/COGRAAUTroublesomeClausesReport.pdf

Significant Proposed Changes

Export Controls: Export Administration Regulations (EAR) & International Traffic in Arms Regulations (ITAR) (2003)

Responsible Conduct of Research Training – NSF (America COMPETES Act 2006)

Federal Funding Accountability and Transparency Act (**FFATA) Subrecipient Reporting** (2006)

National Science Advisory Board for Biosafety (NSABB) **Oversight of Dual Use Life Sciences Research** of Concern

Nuclear Regulatory Commission – Considerations concerning the Security and **Continued Use of Cesium-137 Chloride Sources** (July 2008)

USAID **Partners Vetting System** (re: EO 13224 et al re: terrorist financing)

USDA **Animal Welfare Act, Contingency Planning** (2008)

ATTACHMENT D
COUNCIL ON GOVERNMENTAL RELATIONS

1200 New York Avenue, N.W., Suite 320, Washington, D.C. 20005
(202) 289-6655/(202) 289-6698 (FAX)

November 5, 2003

New Research Paradigms Call for Regulatory Change

Executive Summary

During recent discussions initiated by the Office of Science and Technology Policy about new research business models, much attention was given to interdisciplinary research activities and the team efforts required to carry out such research. Expanding these thoughts further, this paper offers an analysis of the increased administrative responsibilities that are encountered when research projects scale up to more complex, multi-disciplinary and multi-institutional levels.

Starting with streamlining that would benefit the administration of the basic assistance award, the paper recommends changes that would facilitate business practices commensurate with increasingly complex business relationships. The requested changes in current federal regulations described here are not new, but are gaining greater urgency in order to assure accountability and to reduce the administrative burdens and costs that impact both the government and its awardees as projects scale up.

Although this paper focuses primarily on the government-university relationship, it does not seek to diminish the importance of university-industry collaboration nor does it deny the many beneficial relationships existing between universities and their State agencies. The close nexus between education and research that exists in universities makes them not more important, but certainly different from most other research providers.

Introduction: Premise for research business relationships

The essential premise for a new business relationship between the government and universities is the simple acknowledgment that both parties engage as "business partners". This means, among other things, a recognition of complementary interests in the cost effective administration of awards and the providing of adequate funds to meet the joint expectations for the outcomes of research. These mutual interests exist in both the assistance and the procurement mode because in each both parties provide value. Towards these ends, regulatory requirements that create unnecessary burdens should be removed, and funding for administrative expenditures should be based on a thorough and fair examination of the universities' F&A documentation. The term "rate negotiation" is inappropriate and implies a broken process. Equally important is the avoidance of cost shifting and imposing of caps and other restrictions by the government, which the commercial sector would describe as "price controls". It now appears that not only has

the Congress called for new business practices, as evidenced in P.L. 106-107, but that the White House, through the Office of Science and Technology Policy has joined that call for change.

Business Models for the Basic Assistance Award

The simplest research platform is a basic assistance award, which may provide research support of up to $1 million in federal funding. An example of how a new business practice could remove unnecessary regulatory burden for even this simple platform is provided by the proposals of Robert Newton, a former NSF official.

In the early 1980s, Newton proposed that a faculty's entire research should be considered as one "research program" to be managed as an integrated whole rather than as individually sponsored and managed "research projects". The key prerequisite to aggregation was the concept of "relatedness", which the faculty researcher would be obligated to assert and demonstrate. Once relatedness was established, the researcher should be able to use all sources of funding to charge costs to serve research needs rather than be restricted by individual agency budgets. This concept was one of the motivating factors for forming the Florida Demonstration Project in 1983. It is not yet widely embraced in the Federal Demonstration Partnership of 2003.

Several other unnecessary regulatory impediments to the cost-effective management of research could be similarly eliminated by simple changes to the current requirements. These include flexibility in starting a project, the ability to adjust expenditures according to the needs of the research without having to obtain agency prior approval for each individual action; and the authority to extend the timeframe for expenditures as dictated by progress on the project, without being accused of violating the "expenditure rate".

The value of the business efficiency of such changes was recognized when OMB revised Circular A-110 in the early 1990s. OMB directed federal agencies to adopt a unified position on grant management matters and to provide "expanded authorities" to the grant recipient for management without the need for individual prior agency approval at each step. This recommendation reflected broad public support. Agency implementation however was uneven and even today federal agencies are far from uniform in granting such "expanded authorities" to research universities. In 2000, public comment on the statutory requirements of P.L. 106-107 again indicated overwhelming support for granting expanded management authorities to all funding recipients under all government awards. Until these simple steps are taken to adopt sensible business practices, there is little point in discussing the more complicated issues associated with more complex research and funding efforts.

Recommendation:

- Revise OMB Circular A-110 to direct all federal agencies to grant the "expanded authorities" for grants management in accordance with federal regulations to all research universities.

- Endorse the concept that individual but related research projects by a single investigator can be considered one research program for purposes of management and accountability.
- Rely on business system reviews and project audits at universities rather than prior approvals by individual federal agency staff.

Business Models for Multi-Sponsor, Multi-University Projects

Awards for multi-sponsor, multi-university projects range from $1-5 million dollars. Coordination and leveraging of effort is critically important to their success. It is widely acknowledged that their management is complex because they involve teams of scientists working at different sites and on various aspects of one common research problem. Yet, in most cases, none of the participating universities has enough support to cover more than their minimum share of the administrative burden. Because the federal agencies take a narrow view of the budget categories under OMB Circular A-21, sufficient funds are not provided to support the secretarial and clerical personnel required for such a sophisticated effort.

Recently, some federal officials seemed to imply that a "new business model" would require that OMB Circular A-21 be withdrawn and fundamentally revised. We do not believe that such drastic cure is required. All that is required to meet research needs is to go back to Circular A-21 in its original form. That would delete a number of requirements which do not add value.

Several other modest changes to OMB Circular A-21 would further advance businesslike management of research. The language of the cost circular needs to be coordinated with the management circular to avoid discrepancies. Universities should be granted use of the cost of money, which other business sectors currently use. University responsibility for monitoring their sub recipient awards must be limited to reasonable procedures focused on scientific program objectives. The government should not expect universities to serve as auditors on one another's projects. This becomes particularly important in multi-campus arrangements, where the designation of subrecipient vs. research partner may not be sufficiently well defined.

Another federal agency practice contrary to sound business principles is that not all federal agencies pay the negotiated F&A rate. They cite various reasons, some programmatic, some historical. This uneven approach to what is intended to be the government-wide rate becomes particularly visible and detrimental in multi-agency awards. The resistance by several agencies to fully fund the negotiated F&A rates of universities results in extensive under recovery of costs that the science projects can ill afford. Respective data have been provided by the Rand Corporation and more recently by COGR. It would be good business practice for all agencies to scrub their policies, some of which date from the late 50's, and to eliminate restrictions to full rate reimbursement that have been carried forward without appropriate statutory justification.

Large multi-campus research projects may require institutional cost sharing. The capacity of the participant universities to come up with such funds is dependent on many factors. One might surmise that federal oversight over cost sharing as well as general project administration on multi campus awards would be facilitated by Cost Accounting Standards. However, internal consistency rather than commonality is the major objective of these standards. CAS standards add no value to multi-campus or to single investigator awards. They are duplicative and unnecessary because they reiterate A-21 standards. Doing away with these clearly unnecessary requirements, which the federal government admitted it cannot meet in a timely manner, would result in cost savings both for the government and for the universities that would clearly benefit research. Eliminating CAS standards is overdue.

We recognize that the government has legitimate interests in the establishment of ethics safeguards and multi-disciplinary and multi-campus projects may provide special concerns in this area. A new business model for this platform would benefit particularly from agency implementation of the government-wide misconduct in science policy promulgated in 2000. We also ask that all federal agencies follow the lead of NIH and NSF and develop conflict of interest regulations.

Recommendation:

- Return to the original language of OMB Circular A-21
- Allow the direct charging of secretarial and clerical staff
- Provide full funding of negotiated university F&A rates
- Reduce subcontract monitoring to reasonable levels
- Issue Government-wide ethics rules
- Rescind the CAS coverage for universities

Business Models for Large Center Awards

Institutions which compete for large awards for Centers or for specialized institutes for up to $15 million must commit substantial infrastructure support. Such support depends largely on available cost sharing resources. The size and complexity of these awards creates a big gap in management and operation between these awards and the single assistance awards. Yet, the same policies govern both. No reasonable business practice would expect to run a multi-million dollar automobile company like a neighborhood small business enterprise. The current restrictions in OMB Circular A-21 make no such distinction and as a result many of the large universities are stretched to the limit of their fund raising capacity for improvements of the infrastructure and for planning needed new facilities.

For such large projects, the recovery of F&A costs is especially significant and consequently agency cognizance becomes a factor. Universities report considerable differences between the two cognizant agencies in their procedures for rate negotiation. There is no basis for two federal agencies to treat universities differently. Good business practices would call for closer coordination between DCAA and DCA, with respect to their audit and their oversight over F&A rate negotiation.

The more one tries to scale up to a new platform, the clearer the impact of the cap on administrative cost will be felt. No other research performer is subject to caps, which were imposed *in addition* to three major revisions of the circular that took place in the 90s. While these OMB revisions provided a clearer definition of cost categories and eliminated "gray" areas, they also hold universities' administrative rates at a level that was below average even at the time it was adopted.

After a decade without adjustment for cost increases, the university community is no longer able to cover the growing gap between regulatory requirements and the restriction in reimbursement. No other business is precluded by the government from recovering its legitimate business-related compliance costs. Since 1992, universities have had to absorb all administrative costs for new requirements and/or for the upgrading of systems that have become necessary in the intervening time. One would expect that it is in the government's own best interest to support universities in their effort to stay competitive and compliant, especially as new security measures become imperative for the nation. The cap needs to be lifted.

These large awards also reinforce the need for government-wide acceptance of regulations governing human subjects, and to overcome the apparent distrust of the "common rule" which leads agencies to establish duplicative reviews of protocols and IRB procedures.

Finally, unnecessary administrative costs could be eliminated simply by the establishment of government-wide payment systems that would replace the labor intensive and outmoded system of grant-specific draw-down by each federal agency.

Recommendations:

- Seek agreement between cognizant agencies
- Implement rate determination, not negotiation
- Remove the administrative cap
- Adopt a uniform government-wide payment systems
- Discourage duplicative administrative reviews

The New Research Business Model in Review

As we propose it, the new business relationship between the government and universities is based primarily on trust. This trust relies on the understanding that it is in the university's own best interest to self regulate and hold costs down but also on the understanding that the government will provide stable funding and that the recovery of costs for facilities and for administrative services will not unexpectedly be capped.

Universities face a growing perception that science can be separated from administration. That is a fallacy. Universities also witness the encroachment of administrative

procedures that siphon funds that could otherwise support research or teaching. A new business model would eliminate such duplicative federal requirements.

Recommendation:

- Treat universities as business partners
- Permit performance based budgeting
- Set reasonable audit expectations
- Replace certifications with assurances
- Do not permit budget decisions to drive policy

In this new business environment, the government will not be asked to appropriate more, it will merely be asked to allow universities to use resources the way universities determine necessary to support the mutual goal of obtaining the deliverable of sound scientific research.

In Conclusion

Scaling up to different research platforms entails responsibility for scientific, administrative and financial decisions. It influences decisions regarding the workforce and infrastructure, including space and equipment, and calls for careful coordination between centers at different locations and subject to a variety of administrative regulatory requirements. It reaches into areas of regional and national security and raises fundamental questions regarding how one deals with potential restrictions on foreign scientists, with audit oversight and with the freedom to publish research results.

The key to a successful research business model for increasingly complex projects lies in designing comprehensive but simplified administrative guidance and then permitting universities to take responsibility for management and oversight of the wide range of their projects. We believe that success depends largely on the extent to which the government will grant research universities the flexibility to make sound business decisions on campus, subject to subsequent review and audit by the government.

Albert G. Horvath

Biography

Albert G. Horvath is senior vice president for finance and business/treasurer at Penn State effective July 1, 2009. He is responsible for leading the day-to-day management of Finance and Business and the strategic planning process for the unit which has an operating budget of more than $500 million and more than 2,500 employees. He is also responsible for special projects and assignments, including information systems and technology, succession planning, and emergency preparedness.

Al oversees the direct reporting relationships in the areas of auxiliary and business services; corporate controller and controller for the College of Medicine / Milton S. Hershey Medical Center; Office of the Physical Plant; University Budget Office; Office of Investment Management; Commonwealth Operations; University Police; and Human Resources.

Al joined Penn State on June 29, 2007 as vice president for finance and business. He came to Penn State with a wide range of experience in finance and business, much of it in higher education. He has previously served as executive vice president for finance and CFO at Columbia University, where he has been responsible for the financial activities of the university -- including its medical center -- with a $2.7 billion operating budget. At Columbia, he developed a five-year capital plan and debt strategy and created a procurement organization, was involved with several issues at the medical center, and acted as primary administrative liaison to the audit and finance committees of Columbia's board of trustees. He also served as associate vice president for finance/controller, and later vice president for business and finance and CFO, at The California Institute of Technology; as controller at New York University; and as audit director and assistant vice president for finance at Carnegie Mellon University. He started his career as an auditor with Mellon Bank, before becoming a manager in Mellon's trust and investment department.

A 1981 Penn State graduate with a degree in accounting, Al also earned an MBA from Duquesne University in 1985.