

NIST Fiscal Year 2012 Budget Overview

Moderator: Ladies and gentlemen, thank you for standing by, and welcome to the NIST Fiscal Year 2012 Budget Overview webinar. During the presentation, all participants will be in a listen-only mode. Afterwards, we'll conduct a Question and Answer session.

At that time, if you have a question, please press the '1' followed by the '4' on your telephone. And if you would like to ask a question during the presentation, please use the chat feature located in the lower-left corner of your screen. If you need to reach an operator at any time, please press 'star-0'. As a reminder, this conference is being recorded Friday, February 18th, 2011.

I would now like to turn the conference over to Dr. Patrick Gallagher, Undersecretary of Commerce for Standards and Technology. Please go ahead.

Patrick Gallagher: Thank you very much.

Well, good morning, everybody. It's great to have you joining us this morning to hear about our budget overview. I'm joined by many of my colleagues here at NIST who will help me answer any questions you might have at the end.

01:07 I particularly want to wish a very good morning to--I understand we have somebody calling in from Hawaii, so that's a really early morning start. The only thing tempering my sympathy is that they are in Hawaii.

[Laughter]

Patrick Gallagher: With that, let me start with a quick mention of the context of this budget. As I think everybody knows, this overall was a very difficult budget environment. The President made clear that it was important for the government to live within its means and establish some real constraint within that.

That being said, you're going to see a very strong budget request for NIST. And the way to understand that is in the overall context of within a limited budget, setting some very clear priorities, and the priorities that the President laid out focused on a number of key things including innovation, infrastructure and education.

02:14 Within that context, NIST finds itself with a mission that's very well-aligned to those goals.

I think many of you are also aware that there has been a lot of context for this budget as well. It predated the President's budget submission including the gathering of storm report and including the follow-on report, the America Competes Reauthorization Bill that was passed in the last Congress, and the Framework for Innovation Strategy that the White House Office of Science and Technology Policy released.

So let me discuss very quickly why NIST finds itself so well-aligned with this priority.

03:10 The NIST mission, of course, is to promote U.S. innovation and industrial competitiveness through measurement science standards and technology. That has always been our mission, and it finds itself to be very central and very well-aligned with the priority goals that the President laid out.

The NIST programs--and as we go through the budget structure, you will see these fall into several categories. The largest of the NIST programs is the NIST laboratory program. It has three major modes of working including measurement standards of measurement science, documentary standards for technology, and a national unique facility capability.

We also have a collection of extramural programs that work to promote innovation and industrial competitiveness. This includes the Technology Innovation Program, the Manufacturing Extension Partnership program, the Baldrige Performance Excellence program, and a new program called AMTech or Advanced Manufacturing Technology Consortia, that I will talk about momentarily.

04:23 Within those mission-based programs, we also look at key national priority areas, and you will see that's in the budget including a real focus on advanced manufacturing, cybersecurity, infrastructure, and energy and environment issues.

This is the Summary Budget chart. I won't spend a lot of time on this slide because we'll be covering this in some of the breakouts. It illustrates our appropriation structure, and this has three major accounts and we will now have a fourth new account. The STRS is the appropriation account for our laboratory programs.

05:17 With the reorganization last year, we transferred the Baldrige program from STRS to ITS and you see that detail of the budget table.

The ITS account covers the NIST extramural programs including the new Advanced Manufacturing Technology Consortia program, TIP, Baldrige, and MEP. And then our CRS account covers the construction activities at NIST. And finally there's the new program on Public Safety Innovations Fund, which is actually mandatory funding, and I will come back and discuss that a little bit later.

You will see that there are robust increases for NIST in all areas including a significant increase for the NIST laboratory program or the new program for AMTech, increased funding for TIP, a decrease for Baldrige that I will talk about as well, and then an increase for the MEP program.

06:26 The construction account shows a, it's a very modest reflection, and one thing to keep in mind on construction--I will discuss this a little bit later--is NIST is coming off an extensive funding and recovery act in the construction area. And that reality is reflected in the request.

So to start giving you an overview of the NIST budget request, I'll start with our Scientific and Technical Research Services, or the STRS account.

07:08 As I said before, this account covers the laboratory programs at NIST. And if you look at the initiative structure, the program, the President's request is calling for an increase of \$178.4 million to this account. And the request fall into a couple of large themes, and one of these is manufacturing.

We have a number of programs that focus on manufacturing competitiveness in the laboratories, including the measurement science and standards infrastructure in support of industry particularly for time and electrical measurements, the measurement infrastructure for advanced materials, the standards infrastructure for 21st-century manufacturing including new modes of manufacturing and advanced automation techniques, the measurement services to support biomanufacturing and also nanomanufacturing. So we are also addressing these emerging areas.

08:20 The other major theme in our budget request is cyber infrastructure, and that includes a \$43.4-million increase in cybersecurity--we'll cover the breakout of that in just a moment--and also an increase for interoperability standards for emerging technologies--this specifically included smart grid, health IT and cloud computing--and then measurements of standards to support energy efficiency and reduce environmental impact--this includes our Net-Zero Energy Buildings program and greenhouse gas measurement capability--also measurements to support advanced infrastructure delivery and resilience--this is about resilience infrastructure and structures--and then an increase for our PostDoc Research Associate program, which has been a key program at NIST for bringing new talent to the agency.

09:24 Diving a little deeper into the manufacturing... This is a very significant increase for NIST in this area.

One way to understand the focus on manufacturing is both in the context of the NIST mission, which clearly focuses on our touchpoint with industry and our work in the manufacturing sector.

But the other way of looking at it is through the President's framework for innovation. Manufacturing as a process is a key part of the innovation cycle, since innovation is all about the translation of research and ideas into new products and services.

10:04 So for both of those reasons, it's important and very timely to look at our manufacturing programs. And as I said, this includes increases both in the laboratories--over \$70 million of our initiatives there including data infrastructure for advanced materials, looking at a new program that I will come back to, the AMTech, which is to foster the creation of industry consortia to tackle common problems in an industry sector, and an increase for the MEP program, particularly looking at high-growth services that promote growth and sustainable and green technology, and then also an increase for our Technology Innovation Program, which has been funding proposals extensively at manufacturing, including biomanufacturing recently.

11:11 The other major meta-theme, as I talked about, is cybersecurity. This is an area where the demands on this, frankly, are almost outstripping our ability to fund and keep up with them. The initiative has really three major pieces.

One of these is our core capability in advanced cybersecurity. This includes work in, for example, advanced cryptographic techniques, work in security automation, work in defining measurement of security performance and modeling security performance--work that will be absolutely essential to put security management on a sound foundation--work on multi-factor authentication technology, and, of course, work in applying cyber standards to emerging areas. This includes cloud architectures, virtualized architectures, smart grid, other key areas.

12:11 Another major part of the proposal--so that was the core program. The other piece is an effort that has been announced in the last several weeks, where NIST is being asked to take on responsibilities to the National Program Office for the President's National Strategy for Trust of Identities in Cyberspace.

This is a broad strategy involving multiple agencies in the U.S. government working in partnership with the private sector to develop an ecosystem of technologies that allow for robust identity management.

The idea is to not provide a government solution to identity management but to encourage the creation of a technology infrastructure that is voluntary, this is privacy-enhancing, and that government can turn to to use for its own purposes. So this covers password multi-factor authentication and other modes of trust in identity.

13:15 And this request includes efforts both for the program coordination and outreach that's about \$7 million and then component for running pilot programs at about \$17-and-a-half million.

And finally, it includes funding for the other National Program Office responsibility given to NIST under the Comprehensive National Cybersecurity Initiative. This is the National Initiative for Cybersecurity Education or NICE. And the \$4-million request there covers our inter-agency coordination and outreach activity.

14:00 Our request also includes an initiative covering an area that has received a lot of notice in the last two years.

NIST has been given responsibilities through various pieces of legislation to develop interoperability standards to support emerging technologies that are critical to government policies. That specifically includes smart grid, health care IT for electronic medical records infrastructure--interoperability in that area--and also cloud computing.

To this point, the base programs at NIST have largely been supported by Recovery Act funding or transfer from other agencies. So this request is designed to put these programs on the solid support appropriations level to carry out their responsibilities to work with the private sector, to develop not just standards but also the testing infrastructure and that we can turn these standards into meaningful use.

15:06 It is also designed to support some of the core measurement standard programs, whether it's usability of health IT or whether it's the electrical measurement technology needed to support smart grid, and those are also included in this request level.

Another highlight slide in our extramural programs account, as I mentioned earlier, are industrial technology services request. It includes an increase of \$33 million overall. The highlights here are an increase for MEP--I'm going to come back to that in the next slide and discuss the increase there--an increase for our technology innovation program of \$5.2 million.

16:02 To remind everyone, the Technology Innovation Program is a grant program. It funds high-risk, high-payoff research projects in areas of critical national need. It's a cost share program with 50% cost share required of participants, but it does not include federal funding for large company participants, but they can participate on their own funding.

So this has been a very successful program. And as I pointed out before, the critical national need areas that we've funded in the past have included civil infrastructure, manufacturing and biomanufacturing, and we continue to explore new areas including health care, energy, and water infrastructure.

I will also come back and discuss the Advanced Manufacturing Technology Consortia. This is a new program, also a grant program designed to foster

collaborative research by industry.

17:04 And we have one decrease in this account, and that's the Baldrige Performance Excellence program. The administration has established a goal to transfer this program out of federal funding. The reduction this year is an offset where we're using administrative savings to reduce that line item.

But we are also going to use this year to begin to work with our many stakeholders in this critical and very successful program to explore how we maintain the success and integrity of this program as we try to address the administration's goal of transferring this program off federal funding.

I should point out, the Baldrige program is a strong example of a public-private program already and one that is as leveraged as any program I know that's the basis of quality programs, not just across the United States but around the world. And so we will work very carefully with our stakeholder community to reserve that infrastructure as we seek to meet this administration goal.

18:20 So one quick highlight on the MEP program. Funding increases request is \$17.6 million. I think, for any of you who heard my briefing last year on our budget request, the way the MEP program increases have been designed is the core funding, the base funding for MEP is really directed at funding our network of centers across the United States.

These are cost shared grants that go to centers in all 50 states, providing up to one-third of the funding for those centers. And these centers work with small- and mid-sized manufacturers on business development growth and productivity services needed by small and mid-sized manufacturers.

19:13 The increases to MEP are offered through a competitive grant program to the existing centers, and they are specifically designed to promote growth services including things like looking at technology acceleration, technology scouting activities--many of these are done in partnership with the universities in national labs--also working with manufacturers to support environmental or green supplier networks, and to look at sustainable practices within small- and mid-sized manufacturing, and finally to look at expanding markets for small- and mid-sized manufacturers, and specifically they are working with the export tech program to expand export opportunities for these manufacturers.

20:16 The new program in our ITS account is the Advanced Manufacturing Technology Consortia, what we call AMTech. We requested \$12.3 million. This is an initiative that is based on a pilot that NIST has been doing for the last three or four years.

The idea behind this is quite different from any of our existing programs. What it does is it seeks to use federal grant to foster the creation of an industry consortia to work on a shared technology problem.

The example that we like to use is based on our pilot work with the semi-conductor industry where a consortia was formed to look at what would be the technologies for developing electronics after CMOS.

21:19 The current Moore's Law improvements that we've seen in electronics are based on CMOS technology. That technology is reaching fundamental physical limits. And to continue to make the gains and performance that we have become accustomed to and that our technology depends on, we needed to look at what would be the replacement technologies.

Largely, these fall into nanotechnologies and the Nanoelectronics Research Initiative was formed with participation from a large number of semi-conductor companies, included participation by a number of states. And as a result, that consortia has funded and developed a road map for exploring new nanoelectronics technologies that would be the basis for future developments in this area.

22:16 The ingredients for success for a program like this is that there has to be an ability to create the commons. You have to be able to identify across competing companies, a technology challenge that is essential to all of their future.

And the outcome of that work has to be pretty competitive in the sense that all of these competing companies are willing to share in that result. So what we're really talking about is the use of industry consortia to tackle a technology platform problem or a generic technology.

We believe that just as it's important for the NRI and it was important in an early example of SEMATECH, this mode of using cost shared, road map-driven consortia to tackle these platform technologies is an under-utilized approach.

23:15 And it's particularly suitable to manufacturing technology because, very often, the shared technology challenge that these companies are facing is one of processing.

And so this program will allow us to begin work in this area to issue calls for proposals for industry consortia that are proposing ways of working together to address these types of technology platforms. I'm quite excited about this program.

In our Construction of Research Facilities Account, the request is \$84.6 million. Basically, there are only two components to the request for FY '12.

24:00 The first is a Boulder Building 1 renovation project. I guess unless you're a student of NIST construction account details, I should give you a little bit of background.

NIST has been working on a multi-year effort to upgrade and renovate the facilities in our Boulder campus. They were originally constructed in the 1950s and had really reached a point of near-obsolescence where they can no longer support the mission of our technical work out in Boulder.

We did a very detailed analysis of how to address that need and concluded that certain building capability could only be addressed by building a new building--that has been funded and is under construction now; that was the Building 1 extension--whereas other capabilities were best and most cost-effectively addressed through renovation.

25:03 This request is to begin the Boulder Building 1 renovation, which is, again, a multi-year-phased effort.

The other account in part of our request is for safety capacity maintenance and major repairs at \$59.2 million. This is basically our operation and repair account where we look at capacity, safety upgrades to our assisting facilities at all of the NIST facilities, and covering, maintaining a suitable facility condition index.

Again, this has been part of very detailed planning to make sure that NIST has facilities that are effective, that support our mission, and that are safe for the staff to use.

26:02 Finally, before I pause and see if we have some questions, I did want to talk about the other new program in our request.

The President announced, as part of his budget, a program called the Wireless Innovation Infrastructure Initiative, WI3. This is a program that includes a number of aspects including looking at frequency spectrum management and some changes. It includes designating several blocks of spectrum for the use by the public safety community. And it also includes a proposed auction of certain frequency spectrum to the private sector.

Part of the proposal that is affected here is the use of proceeds of that auction to address several major goals, including expanding broadband access in rural America, to looking in and fostering leap-ahead technology for advanced broadband technologies, and also to support broadband technology for first responders for public safety community.

27:26 As part of that effort, NIST will have access to these proceeds from the auction of spectrum--this is called mandatory funding--in total of \$500 million over a five-year period. So our budget request includes the first allotment of that. It shows an allotment of \$100 million in FY '12.

That funding would be used to work with the first responder community, to develop and support the standards infrastructure, to have an end-to-end and interoperable national public safety network-based communication infrastructure.

28:06 We anticipate a lot of this work will be both in outreach and working with the public safety and telecommunications industries, but also designed to specifically look at pilot funding to develop this type of infrastructure.

And with that, I've concluded sort of the 30,000-foot-view of our budget request. And I'd like to go ahead and use the remainder of our time to let your questions drive our discussion from this point.

Moderator: Ladies and gentlemen, if you would like to register a question over the phone, please press the '1' followed by the '4' on your telephone. You will hear a three-tone prompt to acknowledge your request. If your question has been answered and you would like to withdraw your registration, please press the '1' followed by the '3'.

29:07 You may also submit questions using the chat feature located in the lower-left corner of your screen. One moment, please, for the first question.

Moderator: Ladies and gentlemen, as a reminder, to register for a question please press the '1' followed by the '4'.

Moderator: And there appears to be no questions over the phone lines at this time.

30:32 Patrick Gallagher: But before we close the webinar, if there are no questions, let me remind everyone that I do have joining me today representatives from nearly all of the NIST laboratories and programs. So if you'd like to dive in a little deeper in any one of these areas and get further information, we'd be happy to try to answer your question this morning.

If not, and your question occurs to you later, of course, please don't hesitate to contact us as well.

31:06 Moderator: We do have a question that has come over the phone. And that is from Harach Semerjian. You may please proceed.

Caller: Good morning!

Patrick Gallagher: Good morning there.

Caller: This is a very nice budget submission obviously for NIST, but given the budget environment, how do you feel about the potential of getting this through Congress?

Patrick Gallagher: Well, you know, I think what's made this complicated for everybody is that we have two concurrent budget processes occurring at the same time. One is the process that's unfolding in the House of Representatives and then the Senate this week. This involves continuing funding for the existing year. And then of course also released this week was the President's budget request for the next fiscal year.

32:07 I'm not one to start handicapping how budget processes unfold, but I do know that in the end the budget process is largely about priority-setting.

And I think what the '12 request states is the President has made it very, very clear that he is placing a priority within a limited budget request on those activities that support innovation, infrastructure and education. And it's in the context of that clear priority that the NIST increase, which is historically large, very strong, is to be understood that our mission really fits that very well.

This is the beginning of a long process, but I think beginning that process with such a clear statement of priority from the President is an enormous advantage.

33:01 Thank you.

So it appears we also have some questions coming on the chat line. We have some questions about the energy efficiency materials and standards item.

Sean, do you want to comment on that?

Speaker 1: Sure. There are two pieces to it. I believe...let me quickly--the one that I know I'm very familiar with is the one on Net-Zero Energy Building, and \$6 million of that \$13.3 million request is on for net-zero energy buildings, which would cover work on energy performance standards, sustainable building on the local materials, and indoor air quality performance assessment standards work.

And of course as most of you know, we enable the development of standards, we don't actually develop them ourselves. So we work in partnership with industry.

34:01 The second piece to that request is on greenhouse gas measurement. And we'll focus on greenhouse gas monitoring network inventories of bottom-up and top-down measurement based on those measurements, and measurement tools for quantitative determination and verification of those inventories.

So, I think that's the scope of the work in that area.

Patrick Gallagher: We have another question asking for a little bit more information on the AMTech program, specifically for a little bit more information, and a question about cooperation from other agencies.

So, AMTech is a new program proposal. What we envision from NIST is a call for

proposals for the formation of consortia to tackle a common technology platform question by industry.

35:06 It would also support existing consortia in their effort to address platform technology. So it could include funding, for example, for the NRI program that we've talked about and have done as a pilot program already.

I think the task before NIST with a new program like this is to develop robust criteria for this call, which would allow us to meaningfully assess the likelihood that a group of industries is posing the right kind of problem for this type of approach.

I don't envision this as a silver bullet that will fix all problems in manufacturing technology. But I think that there is a fairly good evidence that in a large number of cases, if you look across a given manufacturing sector, whether it's nanoelectronics or whether it's biomanufacturing or various types of nanomanufacturing, you realize that there is a common barrier to advancement by that sector.

36:20 And all of the companies realize how they could benefit if that particular barrier technology was addressed. It wouldn't take away their competitive advantage, but it would be something that they could leverage and move forward. That's really the magic sauce in that program.

There have actually been some preliminary early discussions both with OSTP and with other agencies in the context of whether this is an approach that can be more widely-adopted. In fact, you would expect that, given the history of government funding in consortia, this is an approach that's been used by other agencies before. In fact, the SEMATECH program was funded by both DARPA and I believe the Advanced Technology Program provided some support--we have to check on that.

37:08 But the difference I would see in the use by other agencies would be that NIST would address this as a technology agency. In other words, this is an approach that could be used really by almost any consortia in an advanced manufacturing environment, and we would be evaluating this from the perspective of which ones have the most likelihood to succeed or meet the criteria that we laid out.

I also think this would be a valuable approach for a mission agency where in a particular context, whether it's defense-related technologies or whether it's energy-related technologies or environment-related technologies, that this approach could be used in those areas as well. And what we'd like to do is work with those agencies to make sure we have a common approach in working with the industry to develop these consortia.

38:07 But the real difference, I think, will be in scope. And we'll look at this from a technology perspective and economic perspective, if you will, whereas the other mission-based agencies, I think, will look at this from the perspective of trying to remove barriers to industries that are developing the technologies they need in their mission area.

Patrick Gallagher: So we've had a new question just came in, asking if there's a timetable for off-ramping Baldrige.

There is not. What we have in the request is a goal to explore ways to take this off federal funding.

39:10 The timetable I would like to see is the one that comes from working with the stakeholders. So there is no timetable in our hip pocket, there's no plan for doing this. In the nature of a public-private partnership, I want to do this with my partners.

And so now that the budget's been released, I think our next step is to roll up our sleeves and engage the Baldrige family--community, if you will, and work with them to develop a responsible way to maintain the integrity and effectiveness of this program while meeting the administration's goal.

40:09 Patrick Gallagher: As I've said, if I'm not seeing any other questions coming in, but if you do have follow-up questions, we are--do we have an email or is there a web link for inquiries?

Speaker 2: We can look into that or put it in.

Patrick Gallagher: So I think what we can do is send an email list out to the same folks who were invited to today's webinar and give you an opportunity to follow up with any questions you may have about the request. I realize there's a lot to digest as everybody's looking at this for the first time.

And with that, if there is--ah, we do have one more question. We have a question on particular smart grid technologies or standards that NIST is interested in most.

41:07 The smart grid role that NIST plays is really being driven by the responsibilities that came to NIST as part of the Energy Independence and Security Act.

From that perspective, if you look at it, it clearly drove a couple of priorities. And in fact, those priorities became more acute when significant amount of federal assistance was being pushed as part of the Recovery Act, the fast track of deployment of the smart grid.

So interoperability clearly was a high priority because there was a lot of concern about pushing investment in this area and then not ending up with an interoperable smart grid system that would--because without that interoperability, you would fail to meet the objectives of the overall program.

42:09 Another priority has really been the consumer interface. It's imperative that a smart grid is going to realize its full potential that it has to be an empowering technology that enables consumers to see and manage their energy usage in new ways.

We've all talked about some of the exciting ideas of smart grid-enabled appliances that would sort of automate this interaction, but I think that's where the rich innovation environment is. And it's going to be important because to continue to fund the deployment of smart grid technologies, there has to be a meaningful and tangible consumer benefit, because this touches issues like great recovery and this is something that regional utility commissions will be looking at.

43:01 I also think that this has also raised, and maybe the most important priority of all, is the security integrity of the smart grid. Cybersecurity issues for the grid are of paramount importance to one, if you will, advantage of a dumb grid was robust in that sense, but I think it's the wrong trade-off to simply keep the grid from adopting these very powerful information technologies. But it has to be done in a way that we don't undermine the resiliency and reliability and security of that infrastructure.

These priorities have been laid out very well through the Smart Grid Interoperability Panel, the SGIP. This is the public-private mechanism that NIST established to work with all of the stakeholders in smart grid. Our initiative is really designed to fund and continue the activities of the SGIP, to continue to work with their road map and their priorities to support the Energy Independence and Security Act, and also to make sure NIST keeps up with this effort by making sure the areas where we provide core technical input, including cybersecurity and metrology, that our efforts are timely and able to be available to support this effort.

44:30 We had another question on how a delay in the budget will affect the reorganization of NIST.

I don't believe the--I'm assuming you're referring to the ongoing discussions on the 2011 budget process, not the 2012 request. The reorganization was approved by Congress last year, so there really is no impact on the ongoing budget discussions in terms of our implementation of the NIST reorganization. So I'm pleased to say that's one place where there is not a direct impact.

45:27 Patrick Gallagher: Any other questions?

Moderator: There appears to be no further audio questions at this time.

Patrick Gallagher: Well, very good. Let me take this opportunity, then, to close the webinar and to thank all of you for participating. And as I said, we'd welcome any follow-on questions at the email, if you have them.

So thank you all very much.

Moderator: This concludes the webinar for today. We thank you for your time and ask that you please disconnect your lines. Have a great day, everyone.